Neath Port Talbot County Borough Council

Part IV, Environment Act 1995

Local Air Quality Review and Assessment

Air Quality Action Plan for the Taibach Margam Air Quality Management Area – 2012
EXECUTIVE SUMMARY

The Environment Act 1995 requires local authorities to review and assess air quality within their districts. Where any of the government’s air quality objectives are not likely to be met, local authorities must declare an Air Quality Management Area (AQMA). An Action Plan must then be produced which describes how air quality within the AQMA will be brought back into compliance.

Neath Port Talbot County Borough Council first declared an Air Quality Management Area in the Taibach and Margam area of Port Talbot in 2000. This was necessary because levels of fine particulates (PM$_{10}$) were exceeding the proposed short term Air Quality Objective. An Air Quality Action Plan was drawn up in 2002 following extensive public consultation. The current document updates this plan.

This Action Plan recognises the limitations of the Council’s powers in directly controlling emissions from the Port Talbot steelworks. Regulation on this site is mainly the responsibility of the Environment Agency. The Action Plan also recognises the primary importance of joint action by various organisations in attempting to investigate and resolve local sources of PM$_{10}$. These organisations include Environment Agency Wales, Welsh Government, Neath Port Talbot County Borough Council, Tata Steel, Cambrian Stone Limited, Harsco Metals Limited, Costain, Local Service Board (LSB) members and others.

Examples of this joint working include: a LSB Air Quality Project where the Council, Environment Agency Wales, Public Health Wales, Local Health Board and Welsh Government work together to achieve agreed targets; PM$_{10}$ Steering Group; Data Team; Regulator’s Team and Industrial Forum.

Actions in this Action Plan include those based upon independent expert advice from the Air Quality Expert Group (AQEG) and the University of the West of England (UWE).

This Action Plan is formulated with due recognition of all other corporate and strategic policies and strategies of the Council e.g. health, social care and wellbeing, community plan and environment strategy. It has been the subject to widespread consultation and has been modified where appropriate. The Action Plan will be submitted to Welsh Government.

Air quality continues to follow an improving trend.

This report can be downloaded from the “Reports” section of the Council’s air quality website:

http://airquality.npt.gov.uk/
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1.0 Introduction

1.1 Description of Neath Port Talbot administrative area
The County Borough of Neath Port Talbot covers an area of 44,217 hectares. Rising from sea level in the west to 600 metres at Craig Y Llyn, above Glynneath, Neath Port Talbot is predominantly an upland area dissected by the valleys of the Afan, Neath, Dulais and Tawe rivers which all flow to the sea in Swansea Bay. These valleys are separated from each other by ridges of high forest or moorland. A narrow coastal strip extends around Swansea Bay where the main centres of population are found. The surrounding valleys are rural in aspect with scattered communities. The County Borough has a population of 134,400 (Revised 2001 Census) and contains 66,585 dwellings (Digest of Welsh Local Area Statistics 2001). While over recent decades the overall population trend has been of gradual decline, the 2002 and 2003 Mid Year Estimates (MYEs) showed an increase of 900. The 2001 Census confirmed that the population of the County Borough reflects the consequences of decades of population loss with an ageing population which also has high levels of long term ill health and low levels of economic activity and access to private transport.

The County Borough is served by the M4 motorway with the A465 “Heads of the Valleys” road providing links to the M50 and the midlands. The Intercity Rail service includes mainline stations in Neath and Port Talbot. The area has a strong manufacturing base with more than twice the UK average employed in the manufacturing sector.

The steel industry remains by far the largest industrial employer in the County Borough with around 3,000 employed directly at the Port Talbot works although contraction in the labour force has affected employment, contractors and suppliers.

Coal mining is still important in the valley communities where small mines, opencast sites and coal processing/washeries provide valuable local jobs.
Figure 1 – Neath Port Talbot boundary
1.2 Legislative Background to Local Air Quality Management
The Environment Act 1995 introduced the framework for Local Air Quality Management (LAQM) in the UK. UK government and devolved administrations were required to develop a National Air Quality Strategy containing, standards, objectives and measures for improving UK air quality. The latest (2007) version of the strategy can be found on the Defra website:


Many of the air quality standards that appear in the Air Quality Strategy are transposed from EU legislation. This was achieved via the Air Quality Standards Regulations 2007 which can be viewed at this location

http://www.opsi.gov.uk/si/si2007/uksi_20070064_en_1

Not all of the Air Quality Objectives described in the Air Quality Strategy need to be assessed by local authorities under Local Air Quality Management. Those that do are shown in Table 1 below.
<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Objective</th>
<th>Measured as</th>
<th>To be achieved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>16.25 µg/m³ (5 ppb)</td>
<td>Running Annual Mean</td>
<td>31 December 2003</td>
</tr>
<tr>
<td></td>
<td>5.00 µg/m³</td>
<td>Annual mean</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>1,3-Butadiene</td>
<td>2.25 µg/m³ (1 ppb)</td>
<td>Running Annual Mean</td>
<td>31 December 2003</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>10 mg/m³ (8.6 ppm)</td>
<td>Maximum Daily Running 8 Hour Mean</td>
<td>31 December 2003</td>
</tr>
<tr>
<td>Lead</td>
<td>0.5 µg/m³</td>
<td>Annual Mean</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>0.25 µg/m³</td>
<td>Annual Mean</td>
<td>31 December 2008</td>
</tr>
<tr>
<td>Nitrogen dioxide</td>
<td>200 µg/m³ (105 ppb)</td>
<td>1 Hour Mean</td>
<td>31 December 2005</td>
</tr>
<tr>
<td></td>
<td>Not to be exceeded more than 18 times per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 µg/m³ (21 ppb)</td>
<td>Annual Mean</td>
<td>31 December 2005</td>
</tr>
<tr>
<td>Particles (PM10)</td>
<td>50 µg/m³</td>
<td>24 Hour Mean</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>Not to be exceeded more than 35 times per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 µg/m³</td>
<td>Annual Mean</td>
<td>31 December 2004</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>266 µg/m³ (100 ppb)</td>
<td>15 Minute Mean</td>
<td>31 December 2005</td>
</tr>
<tr>
<td></td>
<td>Not to be exceeded more than 35 times per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>350 µg/m³ (132 ppb)</td>
<td>1 Hour Mean</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>Not to be exceeded more than 24 times per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>125 µg/m³ (47 ppb)</td>
<td>24 Hour Mean</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>Not to be exceeded more than 3 times per year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These Air Quality Objectives only apply where the public is likely to be exposed to pollution in a non-occupational setting. The exposure must also correspond to the averaging period of the Air Quality Objective in order to be “relevant”.

7
Table 2 - Air Quality Objectives not covered by Local Air Quality Management in Wales.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Objective</th>
<th>Measured as</th>
<th>To be achieved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particles (PM$_{2.5}$) (gravimetric)</td>
<td>25 µg/m$^3$ (target)</td>
<td>Annual mean</td>
<td>2015</td>
</tr>
<tr>
<td></td>
<td>15% cut in urban background exposure</td>
<td>Annual mean</td>
<td>2010 - 2020</td>
</tr>
<tr>
<td>PAH</td>
<td>0.25 ng m$^{-3}$</td>
<td>Annual mean</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Ozone</td>
<td>100 µg m$^{-3}$ not to be exceeded more than 10 times a year</td>
<td>8 hourly running or hourly mean*</td>
<td>31 December 2005</td>
</tr>
</tbody>
</table>

Table 3 - UK Air Quality Objectives for protection of vegetation and ecosystems

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Objective</th>
<th>Measured as</th>
<th>To be achieved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen dioxide (for protection of vegetation &amp; ecosystems)</td>
<td>30 µg/m$^3$</td>
<td>Annual mean</td>
<td>31 December 2000</td>
</tr>
<tr>
<td>Sulphur dioxide (for protection of vegetation &amp; ecosystems)</td>
<td>20 µg/m$^3$ 20 µg/m$^3$</td>
<td>Annual mean Winter Average (Oct - Mar)</td>
<td>31 December 2000</td>
</tr>
<tr>
<td>Ozone</td>
<td>18000 µg/m$^3$.h</td>
<td>AOT40+, calculated from 1h values May-July. Mean of 5 years, starting 2010</td>
<td>01 January 2010</td>
</tr>
</tbody>
</table>

+ AOT 40 is the sum of the differences between hourly concentrations greater than 80 µg m$^{-3}$ (=40 ppb) and 80 µg m$^{-3}$, over a given period using only the 1-hour averages measured between 0800 and 2000.
1.3 The role of local authorities in Local Air Quality Management

The Environment Act 1995 requires local authorities to make regular assessments of air quality and identify areas where the Air Quality Objectives listed in Table 1 are not likely to be complied with.

If an area is identified with relevant public exposure, which is unlikely to comply with an Air Quality Objective, then the local authority must declare an Air Quality Management Area (AQMA). Subsequently an Air Quality Action Plan (AQAP) must be prepared to aim to bring air quality back into compliance.

Local authorities are required to take account of the following guidance:

- Local Air Quality Management Policy Guidance Wales (LAQM. PG09(W))
- Local Air Quality Management -Technical Guidance LAQM.TG(09)

However, this Council does not regulate the Tata steelworks and therefore lacks the ability to directly influence emissions from this site, which is understood to make a significant contribution to local PM$_{10}$ exceedances. Consequently the Council has long since cooperated with the Environment Agency which regulates the steelworks and with Tata and other operators on that site to attempt to achieve the aims set out by guidance. These organisations include Environment Agency Wales, Welsh Government, Neath Port Talbot County Borough Council, Tata Steel, Cambrian Stone Limited, Harsco Metals Limited, Costain, Local Service Board (LSB) members and others.

This Action Plan is formulated with due recognition of all other corporate and strategic policies and strategies of the Council e.g. Health, Social Care and Wellbeing Strategy, Community Plan and Environment Strategy.

1.4 Summary of previous reviews and assessments in Neath Port Talbot

Neath Port Talbot County Borough Council has published several documents as part of it’s responsibilities under LAQM. These can be downloaded from the NPTCBC website.

http://pollution.npt.gov.uk/reports.asp

Table 4 Previously published LAQM Reports

<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Review and Assessment of air quality</td>
</tr>
<tr>
<td>2001</td>
<td>Air quality report</td>
</tr>
<tr>
<td>2002</td>
<td>Air quality report</td>
</tr>
<tr>
<td>2003</td>
<td>Air quality report</td>
</tr>
<tr>
<td>2003</td>
<td>Updating and Screening Assessment</td>
</tr>
<tr>
<td>2004</td>
<td>Air quality report</td>
</tr>
<tr>
<td>2004</td>
<td>Detailed assessment of nitrogen dioxide and PM$_{10}$</td>
</tr>
<tr>
<td>2005</td>
<td>Air quality report</td>
</tr>
<tr>
<td>2006</td>
<td>Updating and Screening Assessment</td>
</tr>
<tr>
<td>2007</td>
<td>Detailed Assessment of nitrogen dioxide</td>
</tr>
<tr>
<td>2007</td>
<td>Air quality report</td>
</tr>
</tbody>
</table>
The first step in the Review and Assessment process is an Updating and Screening Assessment which has to be conducted every three years. Where an assessment shows that an Air Quality Objective is at risk of being exceeded, a Detailed Assessment of air quality for the pollutant concerned must be carried out. LAQM Progress reports are now required for each year where an Updating and Screening Assessment is not carried out. The Council’s annual air quality reports have previously been used for this purpose since until 2010.

The first Review and Assessment of air quality in Neath and Port Talbot was published in February 2000. This summarised the first, second and third stage assessments including data as far back as 1997. It concluded that one pollutant (PM$_{10}$) was unlikely to comply with an Air Quality Objective by the compliance date of 31$^{st}$ December 2004. This led directly to the declaration of the Taibach/Margam Air Quality Management Area in 2000.

The 2001 annual air quality report showed that the daily averaged PM$_{10}$ Air Quality Objective was breached, thereby confirming the need for the AQMA to continue in force. There were no exceedances of the other Air Quality Objectives.

The 2002 annual air quality report revealed no breaches of the daily averaged PM$_{10}$ AQO, although Blast Furnace No.5 at the steel works was out of commission throughout that year. Raised levels of nitrogen dioxide were encountered at Victoria Gardens, Neath.

A further Updating and Screening Assessment of air quality was reported in July 2003. This identified the continuing need to monitor PM$_{10}$ in Port Talbot although Air Quality Objectives were not breached during the period in question. Measurements of nitrogen dioxide at Victoria Gardens in Neath were sufficiently high to merit further investigation.

Consequently a Detailed Assessment of nitrogen dioxide and PM$_{10}$ was reported in November 2004 covering data for the calendar year of 2003 and the first six months of 2004. The assessment of PM$_{10}$ showed that there were still sufficient exceedances of the daily averaged Air Quality Objective to warrant continuation of the Air Quality Management Area. The assessment of nitrogen dioxide showed that no breaches of Air Quality Objectives were likely to arise at Victoria Gardens or the other locations investigated.

The 2004 annual air quality report showed that the daily averaged air quality objective for PM$_{10}$ was breached once again. However, no Air Quality Objectives were found to have been breached during 2005.
An Updating and Screening Assessment was reported in April 2006 and this again highlighted relatively high concentrations of nitrogen dioxide at Victoria Gardens, Neath. Other roadside sites were identified as candidates for a Detailed Assessment of nitrogen dioxide. However no Air Quality Objectives for nitrogen dioxide or PM$_{10}$ were exceeded.

A Detailed Assessment of nitrogen dioxide was reported in April 2007. This identified no sites as having exceeded Air Quality Objectives during 2006, but sites at Water Street, Port Talbot and to a lesser extent 193 Neath Road, Briton Ferry were at risk of exceeding Air Quality Objectives.

The 2007 air quality report was based upon modelled data from Groeswen Hospital and Port Talbot Fire Station, to where the AURN monitoring station was relocated during that year. This data indicated that an exceedance of the short term Air Quality Objective for PM$_{10}$. No other breaches of Air Quality Objectives were measured.

The 2008 air quality report revealed compliance with PM$_{10}$ Air Quality Objectives, both at Port Talbot Fire Station and the new site at Dyffryn School, Port Talbot. There were no breaches of Air Quality Objectives for the other LAQM pollutants, although one site at Victoria Gardens, Neath came close to doing so.

An Updating and Screening Assessment was reported in May 2009, which identified the need to proceed to a Detailed Assessment of nitrogen dioxide in respect of Water Street, Port Talbot. Further sites were also identified for deployment of nitrogen dioxide diffusion tubes. The daily averaged Air Quality Objective for PM$_{10}$ was not exceeded in Port Talbot.

A Detailed Assessment of nitrogen dioxide was reported in 2010. This showed that Air Quality Objectives were not breached at Water Street, but recommended that a further detailed assessment should be conducted at this location.

An Air Quality Progress Report was produced in 2010, which identified the need to proceed to a Detailed Assessment of nitrogen dioxide in respect of sites at: Swansea Road, Pontardawe; Victoria Gardens, Neath and Water Street, Port Talbot.

A Detailed Assessment of nitrogen dioxide was reported in 2011. This showed that there were no further problems at Water Street, but confirmed raised levels at Swansea Road, Pontardawe and Victoria Gardens, Neath. The Council committed to deploy continuous NO$_2$ analysers at these locations.

An Air Quality Progress Report was produced in 2011, which identified the need to proceed to a deploy continuous NOx analysers at Swansea Road, Pontardawe and Victoria Gardens, Neath. Detailed Assessment of nitrogen dioxide would be required at both locations.

There has been a decrease in the number of exceedances of the short term PM$_{10}$ Air Quality Objective since 1999, which is shown in Figure 2 below.
**Figure 2 – PM$_{10}$ exceedances 1999 to 2011**

![Graph showing PM$_{10}$ exceedances 1999 to 2011](image)

### 1.5 Potential Health Impact of PM$_{10}$

The Committee of Medical Effects of Air Pollution (COMEAP) advises that air pollution can worsen the condition of those with heart or lung disease and that it can aggravate, but does not appear to cause, asthma.

COMEAP has devised a 1-10 air quality index divided into four air quality bands in order to provide detail about pollution levels in a simple way. The PM$_{10}$ pollution index and band is shown below and is based on the running 24-hourly mean concentration.

**Table 5 COMEAP air quality index for PM$_{10}$**

<table>
<thead>
<tr>
<th>Index</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Very High</td>
</tr>
<tr>
<td>µg/m$^3$ (Grav. Equiv.)</td>
<td>0-16</td>
<td>17-33</td>
<td>33-49</td>
<td>50-58</td>
<td>59-66</td>
<td>67-74</td>
<td>75-83</td>
<td>84-91</td>
<td>92-99</td>
<td>100+</td>
</tr>
</tbody>
</table>

The air quality indexes are accompanied by health advice.
### Table 6 COMEAP Health messages

<table>
<thead>
<tr>
<th>Air pollution banding</th>
<th>Value</th>
<th>Health risk messages for at risk groups and the general population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>At risk individuals</strong></td>
</tr>
<tr>
<td>Low</td>
<td>1-3</td>
<td>Enjoy your usual outdoor activities.</td>
</tr>
<tr>
<td>Moderate</td>
<td>4-6</td>
<td>Adults and children with lung problems, adults with heart problems, who experience symptoms, should consider reducing strenuous physical activity, particularly outdoors.</td>
</tr>
<tr>
<td>High</td>
<td>7-9</td>
<td>Adults and children with lung problems, and adults with heart problems, should reduce strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also reduce physical exertion.</td>
</tr>
<tr>
<td>Very high</td>
<td>10</td>
<td>Adults and children with lung problems, adults with heart problems, and older people, should avoid strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.</td>
</tr>
</tbody>
</table>

**1.6 The Taibach Margam Air Quality Management Area**

The Taibach Margam AQMA was declared in 2000 with respect to an exceedance of the short-term PM$_{10}$ objective. The AQMA covers an area of approximately 1.83 sq Km in which there are 3947 residences and approximately 8525 residents. The extent of the AQMA is shown in Figure 3 below.
1.7 Purpose of this Action Plan
This Air Quality Action Plan (AQAP) fulfils the specific requirements of Section 84(2)(b) and 84(4) of the Environment Act (1995) which deal with air quality action plans. Section 84(2)(b) requires local authorities to draw up action plans where air quality objectives are not likely to be achieved. Section 84(4) makes provision for local authorities to revise an action plan. Local authorities are under an obligation to keep Air Quality Action Plans up to date.

The original air quality action plan was adopted in December 2002 following extensive public consultation. Consideration has therefore been given to update this plan to reflect changes that have occurred since 2002.

The area to which the plan refers is shown on the map which is shown in Figure 4 below and will be subsequently referred to as the "Action Plan Area".
The Action Plan area is shown within the green line.
Neath Port Talbot County Borough Council currently has seven monitors continuously measuring PM$_{10}$ in or around the AQMA. These are shown in Figure 5 below. These exceedances vary each year but are provided by way of example.

The largest number of exceedances are typically encountered in the central zone of the AQMA for the AURN, Prince Street and Twll-yn-y-Wal sites. The additional exceedances at Prince Street during 2011 are likely to be due to construction work on the Peripheral Distributor Road (PDR), unratified data for 2012 are similar to the AURN. The Little Warren monitor was set up during 2012 so there are no figures for 2011.

**Figure 5 PM$_{10}$ monitor locations in Port Talbot and exceedances during 2011**

- Yellow squares are monitors operated by NPTCBC.
- Yellow cross is monitor operated by Environment Agency Wales.

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**Key:**

Yellow squares are monitors operated by NPTCBC.
Yellow cross is monitor operated by Environment Agency Wales.
### Table 6 - Action items changed or removed

<table>
<thead>
<tr>
<th>Previous Action Plan Item</th>
<th>Description</th>
<th>Reason for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Blast furnace 5 rebuilt</td>
<td>Removed due to completion.</td>
</tr>
<tr>
<td>A2</td>
<td>Steelworks dust reduction programme</td>
<td>Expanded and updated.</td>
</tr>
<tr>
<td>A3</td>
<td>Planning policy</td>
<td>Modified to reflect change to UDP required by planning inspector.</td>
</tr>
<tr>
<td>A4</td>
<td>Peripheral Distributor Road (PDR)</td>
<td>Updated to reflect progress on the project and reallocated to ref A5.</td>
</tr>
<tr>
<td>A5</td>
<td>Green Transport Plans</td>
<td>Minor changes to reflect new terminology. Reallocated to ref A8.</td>
</tr>
<tr>
<td>A6</td>
<td>School Travel Plans</td>
<td>Minor changes only. Reallocated to ref A9.</td>
</tr>
<tr>
<td>A7</td>
<td>Bonfires</td>
<td>Minor changes only. Reallocated to ref A10.</td>
</tr>
<tr>
<td>A8</td>
<td>Tree planting</td>
<td>Updated and reallocated to ref A4.</td>
</tr>
<tr>
<td>A9</td>
<td>Fleet vehicle emissions</td>
<td>Removed as all new council LGVs are Euro IV or more.</td>
</tr>
<tr>
<td>A10</td>
<td>Roadside emission testing</td>
<td>Removed since funding is no longer available from Welsh Government.</td>
</tr>
<tr>
<td>A11</td>
<td>Transport in the community</td>
<td>Removed as it is no longer considered to be sufficiently relevant to the AQMA.</td>
</tr>
<tr>
<td>A12</td>
<td>Street Sweeping</td>
<td>Reallocated to ref A13.</td>
</tr>
</tbody>
</table>
### Table 7 - Action items added

<table>
<thead>
<tr>
<th>New Action Plan item</th>
<th>Description</th>
<th>Reason for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Multi-agency interaction</td>
<td>Take account for this important tranche of work.</td>
</tr>
<tr>
<td>A6</td>
<td>Train haulage emissions</td>
<td>Ensure that emissions from dusty trains are minimised.</td>
</tr>
<tr>
<td>A7</td>
<td>NPTCBC regulation of Civil &amp; Marine Slag Cement.</td>
<td>Reflect importance of regulation of this site which borders the steel works.</td>
</tr>
<tr>
<td>A11</td>
<td>Industrial fires</td>
<td>Some industrial fires have great potential for PM$_{10}$ pollution. The aim is to minimise the potential for these within the AQMA.</td>
</tr>
<tr>
<td>A12</td>
<td>Hill fires</td>
<td>Minimise potential for PM$_{10}$ emissions arising from these fires which occur regularly in summer months.</td>
</tr>
<tr>
<td>A14</td>
<td>LSB Air alerts</td>
<td>Provision of an alert system that will enable industry to respond to changing conditions and a pilot alert system that will allow vulnerable individuals to be informed of raised air pollution and act accordingly to minimise the impact.</td>
</tr>
</tbody>
</table>
### 2.0 Proposed Actions

#### 2.1 Prioritisation of Actions including cost benefit analysis:
An assessment of each action by means of a matrix has been carried out by the and the actions ranked in priority order. The results of the ranking are shown in Table 8 below. The actions making up the plan have been categorised as industrial, land use planning, transport, domestic or general environmental.

**Table 8 – Prioritisation of Action Plan Items**

<table>
<thead>
<tr>
<th>Action Plan Ref. No.</th>
<th>Action</th>
<th>Cost Benefit (Large benefit and small cost gives highest cost benefit ratio)</th>
<th>Air Quality Benefit</th>
<th>Number of persons positively affected</th>
<th>Derived ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Multi-agency interaction</td>
<td>High</td>
<td>High</td>
<td>Large</td>
<td>1</td>
</tr>
<tr>
<td>A2</td>
<td>Dust reduction programme at Tata site</td>
<td>High</td>
<td>Medium</td>
<td>Large</td>
<td>1</td>
</tr>
<tr>
<td>A3</td>
<td>Planning Policies</td>
<td>Medium</td>
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<tr>
<td>A5</td>
<td>Transport infrastructure (PDR)</td>
<td>Medium</td>
<td>Small - Medium</td>
<td>Medium</td>
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<td>A7</td>
<td>NPT permitting in vicinity of steel works</td>
<td>Medium</td>
<td>Medium</td>
<td>Small - Medium</td>
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<tr>
<td>A11</td>
<td>Industrial fires</td>
<td>Medium</td>
<td>Small - Medium</td>
<td>Large</td>
<td>2</td>
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<td>A10</td>
<td>Hill fires</td>
<td>Medium</td>
<td>Small - Medium</td>
<td>Large</td>
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<td>A14</td>
<td>Public and industrial air alerts</td>
<td>Medium</td>
<td>Small - Medium</td>
<td>Medium - Large</td>
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<td>A6</td>
<td>Train haulage emissions</td>
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<td>Small - Medium</td>
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<td>Travel Plans</td>
<td>Medium</td>
<td>Small</td>
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<td>A9</td>
<td>School Travel Plans</td>
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<td>Small</td>
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<td>A4</td>
<td>Tree Planting</td>
<td>Low</td>
<td>Small</td>
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<td>Domestic bonfires</td>
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<tr>
<td>A13</td>
<td>Increased street sweeping</td>
<td>Low</td>
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2.2 Action Plan Actions

Ref. A1

**Category:** Industrial – Multi-agency interaction  **Time Scale:** medium to long term

**Action:** NPTCBC interacts regularly with other organisations in a joint attempt to investigate the cause of PM$_{10}$ exceedances and prevent recurrences.

**Responsible Bodies/Partners:** Welsh Government, NPTCBC, Tata Steel Ltd, Cambrian Stone Ltd., Harsco Metals Ltd., Environment Agency Wales, Costain and Neath Port Talbot Local Service Board members.

**Implementation method:** NPTCBC does not have regulatory powers in respect of Tata or the other operators within the steelworks, however the Council seeks to attain it’s LAQM objectives via collaborative working through the approaches described below.

*PM$_{10}$ Steering Group, Data Team, Regulator’s Team and Industrial Forum*

There are regular meetings by the ‘PM$_{10}$ Steering Group’, chaired by Welsh Government and including Environment Agency, NPTCBC and operators (Tata, Tata suppliers and sub contractors and Costain). The Port Talbot PM$_{10}$ steering group meetings monitor overall progress and make decisions on funding for ongoing investigations and specific projects. Reporting to the Steering Group is a ‘Data Team’ which has specific responsibility for advising on detailed technical matters and furthering the recommendations made by Air Quality Expert Group (AQEG) and University of the West of England (UWE).

Members of the Data Team meet regularly to review PM$_{10}$ data and investigate exceedances. An investigation of each PM$_{10}$ breach day is carried out either by NPTCBC or by Tata, depending upon whether the wind direction is from the town or the steelworks. Tata breach investigations are carried out using a methodology approved by the Data Team and witnessed by EAW and this information is shared with the Data Team. PM$_{10}$ exceedances may arise from a variety of sources including emissions from the steelworks, Peripheral Distributor Road (PDR) or other sources including long-distance deposition.

The Data Team is also responsible for a work programme of ongoing PM$_{10}$ investigations and source apportionment studies. This work programme is an evolving document and is therefore subject to frequent modification. However, the latest version of this document is attached as Appendix 1. The basis for this programme of work are independent reports from AQEG and UWE.

There are also regular meetings between regulators of the activities at the steelworks and Welsh Government to track progress. There are also meetings of an Industrial Forum for businesses operating at the steelworks, which aims to maintain the profile of PM$_{10}$ minimisation amongst companies.
that may have some influence over it.

The Council and EAW also regularly meet with Costain and project managers of the Port Talbot PDR (Harbour Way) construction project.

**Air Alerts and pollution measurements**

NPTCBC also provides email alerts to the other organisations to help to resolve emerging poor air quality situations. These alerts are possible because NPTCBC operates a network of seven TEOM FDMS PM$_{10}$ monitors at locations around the AQMA. The locations of these monitoring stations are shown in figure 5. Data from meteorological sensors and other pollution monitors operated by NPTCBC is also shared with partners with the aim of attempting to further the understanding PM$_{10}$ source apportionment.

In February 2012 a new public facing alert system was launched as part of a 2 year pilot study.

**LSB Air Quality Project**

Air quality in Neath Port Talbot has also been an LSB project since 2009. The Council, in conjunction with partners on the Local Service Board (LSB), agreed that air quality could be further improved through the collaborative efforts of the LSB. This led to the development of a LSB Air Quality Project Board, where the Council, Environment Agency Wales (EAW), Public Health Wales (PHW), Local Health Board (LHB) and Welsh Government (WG) work together to achieve agreed targets.

This project is now in its fourth year and partners work together to deal with the main issues highlighted in this report. Each year it identifies a new action plan and works to meet its objectives.

In 2011 the objectives included: 1) working to better monitor and understand air quality across the county borough, 2) implementation of a public health related air alert system for targeted residents of the Port Talbot AQMA, 3) improving collaboration on planning and permitting processes and 4) better informing and engaging with the public on air quality related issues. It has made progress in each of these areas as follows:

1) New monitors are being installed across the county borough covering issues of PM10, traffic and nickel.

2) A contract has been let for the development and implementation of a system called ‘airAware’ that will enable air quality alerts (see ref A14) to be sent to targeted people identified by their GP who have specific health issues and who live in the Port Talbot AQMA. This will hopefully enable those residents to manage their own health in a more proactive way. This is a 2 year pilot study that if successful may be rolled out across Wales. This will also provide for an email only alert system for industry and regulators to replicate the current system provided by King’s College. This system is also being improved in parallel with the airAware project.
3) WG, EAW and NPTCBC Planning and Regulation have been working together to improve how the two processes may better support each other. WG also hosted a workshop on how regulators could improve their effectiveness in dealing with PM10 issues in Port Talbot.

4) During late 2010 a public event was held in Port Talbot to discuss air quality. This identified the need for more engagement with the public, especially younger people, provision of better information on air quality and the need to deal with traffic related pollution.

In 2011 a focus group was set up to deal with the outputs of the 2010 event. This residents group included school children who later went on to provide design ideas for a new website. The new website is now live. A further public event has took place in March 2012 in Neath. This event was opened by the Minister for Environment, Sustainability and Housing and concentrated on transport and traffic related issues.

A new LSB Action Plan will be put in place for 2012.

**Short Term Action Plan for PM10**
The Welsh Government issued a Short Term Action Plan (STAP) for PM$_{10}$ on xx xxxx xxxx. This provided for a number of actions for partner organisations such as the Environment Agency and Neath Port Talbot Council. The STAP will be kept up to date by Welsh Government.

**Environmental consequences:**
(i) Air Quality (PM$_{10}$) – High.

**Economic consequences:** Correctly identifying the most significant PM$_{10}$ sources will minimise the chance that money could be wasted on the abatement of the wrong sources of PM$_{10}$.

**Social consequences:** The reduction of PM$_{10}$ exceedances. Empowerment of vulnerable individuals to manage their own health. Improved knowledge on air quality for the public.

**Cost benefit analysis:** High

**Allocated priority:** 1

**Indicator:** The extent to which studies are able to identify sources of PM$_{10}$ exceedances and subsequently resolve them. The extent to which the various PM$_{10}$ producers are able to intervene to attempt to avoid PM$_{10}$ breach days on the basis of email alerts.
Ref. A2

Category: Industrial  Time Scale: Medium to Long

Action: Dust reduction programme/improvement at the steelworks. This is an on-going programme aimed at identifying and quantifying sources of dust and assessing the significance of the impact. The EPR permits for Tata, Cambrian Stone and Harsco Metals contain timetables for improvement of dust controls and investigation of future improvement options. The programme for Tata is listed in Appendix 2, although similar ones exist for Cambrian Stone and Harsco Metals. The dust improvement programme is one of a number of other interventions carried out by Environment Agency Wales in order to regulate the steelworks site. A list of the other interventions is included in Appendix 3.

Neath Port Talbot Council will periodically review Best Available Techniques (BAT) at plant that that it regulates in the Action Plan area e.g. Civil & Marine Slag Cement.

Responsible Bodies: Tata Steel Ltd, Cambrian Stone Ltd., Harsco Metals Ltd. and Environment Agency Wales.

Implementation: Through the IPPC permitting process, identifying possible improvements and set implementation timetables.

Environmental consequences:
(i) Air Quality (PM$_{10}$) – Likely to be high but impossible to quantify.
(ii) Air Quality (non PM$_{10}$) - Less dust fallout.

Economic consequences: Improvement programmes will identify improvements, costs and anticipated benefits. Regulator and operators will arrive at priorities for improvement and timescales.

Social consequences: Reduction in fugitive PM$_{10}$ emissions and possible consequent health improvement.

Cost benefit analysis: High

Allocated Priority: 1

Indicator: Reduced annual releases of particulate from the whole site.
Ref. A3

Category: Planning Policy  
Time Scale: Medium to long

Action: The current adopted planning policy as set out in the UDP is based on the following:-

Proposals for new or expanded activities or developments will be resisted on air quality grounds in the following circumstances:

a) Taibach/Margam Air Quality Action Plan Area where the activity or development will create significant additional PM$_{10}$ within the AQMA and give rise to significant risk of additional breaches of the Air Quality Objective;

b) Where the development or activity will cause a significant risk that any of the local Air Quality Objectives or Limits Values set by the Welsh Government or established Environmental Bench Marks for other air pollutants will be breached. Any such proposals will be assessed in accordance with the methodology in the Environment Agency HORIZONTAL GUIDANCE NOTE IPPC H1: “Environmental Assessment and Appraisal of BAT” MODULE 3 Quantify Impacts – ISBN 011 3101082.

Policy ENV15 and its justification relating to the Margam / Taibach AQMA is given in full in Appendix 4.

The Authority is now in the process of preparing the Local Development Plan (LDP). A consultation took place on the Pre-Deposit Plan, which has now closed and discussions with Environment Agency on such matters as air quality are ongoing. The forthcoming Deposit Plan (scheduled for consultation February 2013) will contain detailed policies which will include measures to minimise adverse impacts of developments on communities and the environment.

Responsible Body: Neath Port Talbot CBC Environment Directorate.

Implementation method: Through the Development Control Section of the Planning Services Division processing and making recommendations concerning applications in accordance with planning policy.

Environmental consequences:
(i) Air Quality (PM$_{10}$) - Medium
(ii) Non Air Quality - Social, Economic and Health effects

Economic consequences: The policy would constrain developments which would give rise to significant levels of particles.

Social consequences: Positive perception by residents & stakeholders if unacceptable polluting developments are prevented, but possible adverse economic impact.
Cost benefit analysis: Medium
Allocated priority: 1
Ref. A4

Category: Tree Planting  Time Scale: Long

Action: Research from Environment Agency suggests that certain types of tree e.g. silver birch are more effective at abating airborne particulates than others. However other research\(^1\) suggests that quite a lot of planting is required to have a significant effect upon deaths or hospital admissions.

Tata is implementing a plan for greening the steelworks, which is the subject of an improvement plan item in the Environment Agency’s permit. This is shown in Appendix 2 below.

Construction on the second phase of the Peripheral Distributor Road started in 2011. Tree planting and greening is also to be carried out as part of this scheme.

The LSB are working with Forestry Commission Wales to prepare a tree planting programme known as the “Urban Trees Project” following the public event in Neath in March 2012.

Responsible Bodies/Partners: Neath Port Talbot CBC Environment Directorate, LSB, Forestry Commission Wales, Costain, Tata Steel Limited, Environment Agency Wales.

Implementation method: Through the Environment Agency’s permitting programme and via a contract between Neath Port Talbot CBC and Costain. All parties will work to ensure that suitable trees and other plants are sourced and planted as part of the process.

Environmental consequences:
(i) Air Quality (PM\(_{10}\)) - Small
(ii) Non PM\(_{10}\) consequences - Adsorption of a percentage of gaseous pollutants, visual impact, ecological benefits, recreation, reduction in nuisance dust.

Economic consequences: Small

Social consequences: Positive perception by stakeholders.

Cost benefit analysis: Low

Allocated priority: 3

Indicator: Number of trees and shrubs planted and area subject to greening.

\(^1\) Abhishek, Tiwary et al, Environmental Pollution Volume 157 (2009) pp2645-2653
Ref. A5

Category: Relief road (PDR)  Time Scale: Long

Action: Provision of an alternative route for traffic bypassing the A48 and resulting in overall decrease in pollution according to dispersion modelling.

The Data Team is looking at the air quality implications of closing M4 junctions in Port Talbot. Consideration will also be given to the possible effect of new development in the Acton Plan areas following completion of the Peripheral Distributor Road.

Responsible Bodies/Partners: Neath Port Talbot Environment Directorate, Welsh Government and the European Union.

Implementation method: Stage 1 is now complete and work on Stage 2 is currently underway.

Environmental consequences:
(i) Air Quality (PM$_{10}$) Small (during operation, but could be medium during construction)
   (NO$_2$) - Medium
(ii) Noise - Potential reduction in traffic noise in Port Talbot

Economic consequences: The PDR is an essential element in the economic development and prosperity of the area and will open up opportunities for re-development.

Social consequences: Generation of greater prosperity in the area giving rise to the possibility of a health gain.

Cost benefit analysis: Medium

Allocated priority: 2

Indicator: Completion of the PDR.
Ref. A6

**Category:** Train haulage emissions  
**Time Scale:** Short to medium

**Action:** NPTCBC to investigate any reported incidents of visible emissions of particulates from train carriages hauling aggregate or similar materials through the AQMA. Follow up any justified complaints with Network Rail, haulage companies or producers to minimise emissions as necessary.

**Responsible Bodies/Partners:** Neath Port Talbot CBC, Network Rail, haulage companies and producers as appropriate.

**Implementation method:** Via direct contact with Network Rail, hauliers etc.

**Environmental consequences:**
(i) **Air Quality (PM<sub>10</sub>)** - Medium

**Economic consequences:** Small

**Social consequences:** Positive perception by stakeholders.

**Cost benefit analysis:** Medium

**Allocated priority:** 2

**Indicator:** Prevention and resolution of any complaints of visible dust from trains hauling aggregates.
Ref. A7

**Category:** Industrial  
**Time Scale:** Long

**Action:** Ensure activities regulated by NPTCBC in the vicinity of the steelworks comply with permit conditions to minimise PM$_{10}$ emissions.

**Responsible Bodies/Partners:** NPTCBC, Civil & Marine Slag Cement.

**Implementation method:** By regulation in accordance with guidance provided by central government.

**Environmental consequences:**
(i) **Air Quality (PM$_{10}$)** – Possibly medium but impossible to quantify.
(ii) **Air Quality (non PM$_{10}$)** - Less dust fallout.

**Economic consequences:** Small

**Social consequences:** Reduction in fugitive PM$_{10}$ emissions and possible consequent health improvement.

**Cost benefit analysis:** Medium

**Allocated priority:** 2

**Indicator:** Operators complying with permit conditions including emission limits.
Ref. A8

**Category:** Transport – Travel Plans  **Time Scale:** 1 to 5 years

**Action:** Through the development control process the Authority as the local planning authority takes impacts by way of traffic generation associated with an application into account. Where significant levels of traffic are likely to be generated, developers are required to prepare Transport Assessments to appraise travel demand and related impacts. Travel plans are normally requested in such cases explaining how they propose to minimise traffic and emission generation and how it is proposed to promote the use of public transport, cycling and walking in place of the car. Travel plans are normally required for organisations with 50 or more persons employed. Travel plans can also be introduced in large residential developments and major sporting or leisure developments.

**Responsible Bodies/Partners:** Neath Port Talbot as local planning authority, developers, companies and organisations and the South West Wales Integrated Transport Consortium (SWITCH) Travel Plan Co-ordinator.

**Implementation method:** Through the development control process and through the work of the SWITCH Travel Plan Co-ordinator for the region.

**Environmental consequences:**  
(i) **Air Quality (PM$_{10}$) - Small**

**Economic consequences:** Small

**Social consequences:** Change in travel patterns and increased use of public transport, cycling and walking. Reduce the need to travel via new technology.

**Cost benefit analysis:** Medium

**Allocated priority:** 3

**Indicator:** Number of travel plans implemented in the vicinity of the AQMA.
Ref. A9

**Category:** Transport – School Travel Plans  **Time Scale:** 1 to 5 years

**Action:** To support schools interested in preparing a School Travel Strategy and an individual School Travel Plan for their school, in order to reduce the impact of the school journey within the AQMA.

**Responsible Bodies/Partners:** Neath Port Talbot CBC, the Head Teachers and Governors of the schools within and close to the AQMA and the children and parents of the schools in the area.

**Implementation method:** As part of the overall work of promoting and supporting schools across the whole borough, the School Travel Plan Coordinator to promote and support schools in and close to the AQMA in implementing School Travel Plans.

**Environmental consequences:**
(ii)  **Air Quality (PM$_{10}$)** - Small

**Economic consequences:** Small

**Social consequences:** Providing an environment which enables and encourages children to walk or cycle to school safely, leading parents away from the perception that the safest way to take their children to school is via the car. In addition it will help with lifestyle improvements such as increased exercise for children leading to better health.

**Cost benefit analysis:** Medium

**Allocated priority:** 3

**Indicator:** Number of schools within or close to the AQMA implementing School Travel Plans.
Ref. A10

Category: Domestic - bonfires  **Time Scale:** 1 year

**Action:** Discourage bonfires in the area by a combination of education and also diversion of green waste for composting.

**Responsible Bodies/Partners:** Neath Port Talbot County Borough Council and the community.

**Implementation method:** Promotion of disposal of green waste at civic amenities sites for subsequent composting. Promotion of recycling in general and home composting where appropriate. Targeted campaigns with specific groups e.g. allotment holders and community groups against bonfires.

**Environmental consequences:**
(i) **Air Quality (PM$_{10}$)** – Small  
(ii) **Other Pollutants** – Beneficial reduction of potentially toxic compounds as well as smoke, smut and soiling prevention.

**Economic consequences:** Small

**Social consequences:** The principles of recycling and sustainability are reinforced with the community and quality of life is improved by removal of bonfire nuisances such as smutting and low level smoke inhalation.

**Cost benefit analysis:** Medium

**Allocated priority:** 3

**Indicator:** Quantity of green waste recycled in the area and the amount of education or campaigning undertaken.
Ref. A11

Category: Industrial - fires  Time Scale: 1 year

Action: Identification of sites that contain quantities of potentially combustible waste, which might have the capacity to burn for significant periods of time e.g. tyre crumb waste stockpiles.

Responsible Bodies/Partners: Neath Port Talbot and Environment Agency.

Implementation method: NPTCBC shall identify sites with planning permission to hold significant quantities of combustible waste and shall ensure that planning conditions are adhered to. Environment Agency shall ensure that permit conditions of waste permits shall be adhered to. Information about sites identified as having a high risk (including sites without an environmental permit or planning permission) shall be shared amongst these organisations and Mid and West Wales Fire and Rescue Service in order to attempt to minimise the risk of fire from these sites.

Environmental consequences:
(i) Air Quality (PM$_{10}$) – Depends on length and severity of fire. Estimated to typically be small to medium.
(ii) Other Pollutants – Beneficial reduction of potentially toxic compounds as well as smoke, smut and soiling prevention.

Economic consequences: Small

Social consequences: Such fires often burn for days or weeks and can have significant adverse effects upon residents. The prevention of such fires is therefore desirable

Cost benefit analysis: Medium

Allocated priority: 2

Indicator: The avoidance of long-lasting fires involving tyre or other waste materials.
Ref. A12

Category: Domestic – hill fires  Time Scale: 1 year

Action: Prevention of hill fires that might affect the AQMA.

Responsible Bodies/Partners: Mid and West Wales Fire Brigade.

Implementation method: Mid and West Wales Fire Brigade’s Community Fire Safety Team promotes fire safety at schools and with farmers. The aim is to prevent hill fires by education of groups which are typically associated with such fires.

Environmental consequences:
(i) Air Quality (PM$_{10}$) – Depends on length and severity of fire. Estimated to typically be small to medium.
(ii) Other Pollutants – Beneficial reduction of potentially toxic compounds as well as smoke, smut and soiling prevention.

Economic consequences: Small

Social consequences: The quality of life is improved by reduction of hill fire nuisances such as smutting and low level smoke inhalation. The adverse effect of hill fires on wildlife are minimised.

Cost benefit analysis: Medium

Allocated priority: 2

Indicator: The avoidance of regular hill fires in the vicinity of the AQMA.
Ref. A13

**Category:** General environmental – street sweeping  **Time Scale:** 1 year

**Action:** Taibach Margam falls into Zone 3 for the purposes of street cleaning (wet sweeping). Street sweeping is currently carried out monthly. The standards are assessed by the Area Supervisor who can change the specification if he feels it is needed, to a more frequent sweep.

**Responsible Bodies/Partners:** NPTCBC.

**Implementation method:** More frequent sweeping can be instituted by the Area Supervisor of the Streetcare Services Cleansing Section as required.

**Environmental consequences:**
(i) **Air Quality (PM\textsubscript{10})** – Small.
(ii) **Nuisance dust** – Medium.

**Economic consequences:** An increase in cleansing costs.

**Social consequences:** A more positive impression of the area and the Council as cleanliness of the street scene improves.

**Cost benefit analysis:** Low

**Allocated priority:** 4

**Indicator:** The cleanliness of the street scene.
Ref. A14

Category: General environmental – Air Alerts  Time Scale: 2 years/ongoing

Action: Development of Air Alert system to provide timely information on air quality direct to industry and targeted members of the public.

Responsible Bodies/Partners: Neath Port Talbot Local Service Board members, local GPs, Industry and general public.

Implementation method: Two separate systems will be provided. An email alert only system to industry and regulators will allow them to react quickly to emerging poor air quality situations and thereby reduce PM$_{10}$ exceedances. Another system called ‘airAware’ will make alerts available to members of the public. This system will be designed so that it can be scaled up if it is found to be a success.

Environmental consequences:
(ii) Air Quality (PM$_{10}$) – Small to medium.

Economic consequences: European funding has been obtained for the ‘airAware’ project.

Social consequences: The provision of timely information to industry reduces the incidence of PM$_{10}$ exceedances. The provision of timely information to members of the public will allow them to better manage their health.

Cost benefit analysis: Medium

Allocated priority: 2

Indicator: Incidences of action taken by industry in response to an alert. The uptake of the air alerts system amongst the public.
Appendices
Appendix 1. Data Team work programme

Port Talbot PM$_{10}$ Data Team

Output focused work programme
Port Talbot PM$_{10}$ Data Team

The PM$_{10}$ Data Team is the technical working group that currently scrutinises the further evidence needed to improve PM$_{10}$ concentrations in Port Talbot. It is tasked to review the data on PM$_{10}$ and to improve the management and interpretation of the data across the different organisations. This group assesses the performance of investments and trials and takes forward the recommendations from the UWE Study and the AQEG advice note.

The purpose is to facilitate a close working relationship between Welsh Government, Environment Agency, Neath Port Talbot CBC and local industry in analysing and understanding air quality data for the Port Talbot AQMA.

The main aim is to better understand the most significant sources of PM$_{10}$ that impact the Port Talbot AQMA. This is done by ensuring that the correct priorities have been identified for action.

The meetings involve discussion of progress against each item within this PM$_{10}$ Action work programme. This includes:

- monitoring,
- data quality,
- data analysis,
- source apportionment,
- chemical speciation measurements, and
- dispersion modelling.

The Port Talbot PM$_{10}$ Data Team provides updates to the steering group to enable their strategic and resource planning.
1. Key Evidence

Independent reviews of air quality in Port Talbot have recently been undertaken by the UK Air Quality Expert Group (AQEG) and the University of West England at the request of the Welsh Government and suggest the likely source of high PM$_{10}$ is the steelworks site, but outline that further work is needed to pinpoint the on-site activities responsible. The Welsh Government, regulators and industry operators are working in partnership to implement the recommendations from these reports.

**UWE Report**

The Welsh Government commissioned an independent expert review of PM$_{10}$ monitoring and modelling work within the Neath Port Talbot area from the University of West England to provide advice to Ministers on further measures to pinpoint sources of particulate matter.

The findings of this review were published in November 2009. The report makes several detailed recommendations for further work, which are currently being implemented.

**AQEG Report**

In order to move forward with the next phase of work and to ensure it is scientifically robust, the Welsh Government asked the Air Quality Expert Group (AQEG) to undertake an advice note on Port Talbot. AQEG provides scientific advice on air quality to Ministers in Defra and the Devolved Administrations in Wales, Scotland and Northern Ireland.

The AQEG published their advice note and made 12 recommendations in March 2011. The recommendations have been accepted and will be used to assist further understanding of the potential sources of particulate matter. The successful implementation of the recommendations requires actions from all stakeholders.

AQEG undertook an open evidence session to support this work in Port Talbot in November 2010 and have held additional information gathering meetings with Tata Steel. The regulators, industry operators, local residents and pressure groups attended and gave evidence at the open session.
2. AQEG Recommendation 1

Recommendation

AQEG recommends that a priority for further work should be to model the impact of all the sources within industrial complex on PM$_{10}$ concentrations observed in Port Talbot.

Recommendation Detail

The modelling should have an hourly resolution covering the whole year, with the results verified by comparison with the monitoring data. There will need to be close linkage between the modelling and the emission inventory, with feedback from the modelling used to highlight areas for improvement within the inventory. The modelling should allow for terrain effects on wind flow and dispersion, which will require a model domain extending beyond the immediate vicinity of the site to include the hills to the east. The modelling should also consider buildings, in so far as they will affect initial dispersion (not wind flow); both these effects can be accounted for in readily available dispersion models.

Data Team Response

The Data Team welcome this recommendation. Developing a robust modelling evidence base and supporting emissions inventory is viewed as a priority. Work, already started, will continue to develop an emissions inventory and periodic dispersion modelling exercises will be completed, accounting for the influence of terrain and buildings. Difficulties have been experienced in identifying all possible impacting sources and how they vary over space and time, however, it is acknowledged that this will be an iterative process with robustness and accuracy being developed as further work is completed and new information becomes available. Tata Steel and other operators at the Steelworks already undertake an on-site measurement programme to quantify fugitive emissions and will continue to develop this, whilst also ensuring it feeds into the development of the emissions inventory.

Lead organisations: Tata will be responsible for delivering an updated dispersion model and comprehensive emissions inventory for the industrial complex. This will be periodically updated as new information becomes available. The Data Team will be fully engaged in developing the scope and reviewing outputs from this process.
3. AQEG Recommendation 2

Recommendation

AQEG recommends that an initial dispersion modelling exercise should be carried out using readily available information on emissions from all sources, which can be supplemented over time with a more detailed time-resolved emission inventory.

Recommendation Detail

It is recognised that some components of the inventory will be difficult to quantify with a high degree of accuracy, but this should not constrain the development of an initial best possible inventory using available information. Once an inventory is established and modelling carried out the results will help identify those sources for which more accurate data are required, i.e. there should be a feedback loop between the emission inventory and the modelling. AQEG would expect to see an initial modelling study carried out within 6 months.

Data Team Response

The Data Team welcome this recommendation and consider it a priority. Work to develop a dispersion modelling programme, alongside a comprehensive emissions inventory is outlined above in response to Recommendation 1. An initial dispersion model has already been undertaken for known Steelwork’s emissions by Tata Steel but it is recognised that this requires updating to incorporate the latest and more comprehensive information. As already outlined, the iterative nature of this process is integral to enhancing the accuracy of a dispersion model. However, the use of this process to also enhance the emissions inventory is acknowledged and this feedback loop will be incorporated within the dispersion modelling framework. The scope for the overall programme for completing dispersion modelling will be considered by the Data Team within the resource constraints which it operates. The data group are, however, committed to an initial dispersion model exercise based on current and readily available information.

Lead organisations: Tata will lead this activity with full input from the Data Team (see Recommendation 1).
4. AQEG Recommendation 3

Recommendation

AQEG recommends that an early review should be carried out of the available meteorological data to establish whether the meteorological monitoring sites are sufficient to characterise the air flows over the industrial complex and the surrounding area.

Recommendation Detail

The review should identify the most appropriate site(s) to use and whether new sites should be established, or existing sites modified (such as installing a new mast to ensure the wind monitor is 10 m above the ground). This review should consider all existing monitoring data and recognise the potential for local factors to influence the wind data near to a monitoring site that might make the site unrepresentative of the general flow across the industrial complex. AQEG has given careful consideration to the potential benefits of CFD modelling of the wind field across the site.

Data Team Response

The Data Team welcome this recommendation and acknowledge that improved meteorological data will be beneficial. The Data Team will review the quality of current meteorological data as soon as possible and if necessary, will take measures to re-site or extend the current network of monitoring sites. Implementation of additional sites will, however, be subject to resource availability.

Lead organisations: A sub group of the data team (including the EA and NPTCBC who are responsible for implementing monitoring) are to lead a review the adequacy of the current meteorological data before deciding the next steps.
5. AQEG Recommendation 4

**Recommendation**

AQEG recommends that CFD modelling at the building scale would be of limited benefit and should not be pursued.

**Recommendation Detail**

- 

**Data Team Response**

The Data Team agree that CFD modelling is not a high priority at this stage and commit to proceed with characterising wind flows at a lower resolution within the modelling exercise outlined in the recommendations. CFD modelling will not be pursued as part of the Data Team work programme.
6. AQEG Recommendation 5

**Recommendation**

AQEG recommends that all of the monitoring sites currently in operation should be retained for a minimum of a further two years.

**Recommendation Detail**

This will provide sufficient data to allow for robust data analysis. After this period it would be appropriate to evaluate the results with a view to reducing the number of sites. AQEG recognises that Environment Agency Wales has deployed one of its mobile monitors at the Prince Street site and as such its permanence is unknown. If the Prince Street site is to be decommissioned, then AQEG suggests that consideration be given to relocating one of the Council’s FDMS monitors to the Prince Street location. The Theodore site may be suitable for this relocation. If it is required, this relocation should occur as soon as possible, to allow data from comparable instrumentation to be made available for analysis. AQEG is also aware that there was poor data capture from the FDMS instrument at the AURN site during 2010. Given the importance of the data from this site, AQEG would expect to see a high priority given to ensuring a high level of data capture in future.

**Data Team Response**

The Data Team view a high level of data capture from all monitoring sites as a priority. We also acknowledge that retaining a consistent long-term data set is a central component of the management strategy. Recent enhancements have also been made at Princes Street with the existing TEOM being supplemented with an FDMS instrument (as recommended) and a Partisol monitor shortly to be installed at the site. Reference equivalent hourly data for will now be available from all existing monitors surrounding the industrial complex. We also consider the current network of one AURN (fire station) site, six NPTCBC sites and one Environment Agency Wales site sufficient to characterise PM$_{10}$ in the urban area. This provides sufficient data to allow for robust data analysis. Each of these sites will remain in place for a minimum of two years.

Lead organisations: Respective responsibilities for the organisations responsible for operating the existing monitoring sites.
7. AQEG Recommendation 6

Recommendation

AQEG recommends that an FDMS monitor should be located to the west of the industrial complex on the coast, co-located with a wind monitor 10 m from the ground.

Recommendation Detail

AQEG has identified an important need for an up-wind monitor to allow the contribution of the industrial complex to be isolated from the background PM$_{10}$ being imported into the area. The use of an FDMS monitor is to ensure consistency with the monitors currently operational in Port Talbot (which would be appropriate for the purposes of hourly subtraction of up-wind data). It should be operated to AURN standards. The location of the TEOM monitor currently operated by Tata near the coast is considered suitable for this monitor and AQEG would encourage Tata to make this site available.

Data Team Response

The Data Team recognise the value of locating and FDMS monitor on the coast, which will provide an indication of the proportion of observed emissions that can be attributed to regional/transboundary sources during elevated PM$_{10}$ levels. However the Tata beach site is not appropriate for this undertaking due to it being impacted by industrial and non-industrial particles. Consideration will therefore be given to the most appropriate site location for a monitor to characterise PM$_{10}$ imported into the area for data assessment.

Lead organisation: NPTCBC and the Environment Agency will be responsible for determining a suitable site, agreed by the Data Team.
8. AQEG Recommendation 7

**Recommendation**

AQEG recommends that a central repository, ideally web-based, should be established to hold all long-term monitoring data.

**Recommendation Detail**

(for all sites with a minimum of 6-months data). This repository should hold data on the monitoring sites, including accurate 6 figure grid references, as well as a full set of 1-hour data, clearly marked as hour beginning (or hour ending), whether GMT or local time, whether provisional or ratified and with the method used. It is important that the repository includes wind data as well as PM$_{10}$ data. The wind data should be from as many sites as possible. The data on the repository should be freely available to any external party. The Welsh Air Quality website (www.welshairquality.co.uk) is an example of a good model for the data repository.

**Data Team Response**

The Data Team agree that appropriate storage of and access to all monitoring data is a high priority. However all Port Talbot Air Quality Management Area data is currently available or will shortly be available via the Welsh Air Quality website (www.welshairquality.co.uk). The data team will consider including additional on-site data if it is made available. Whilst the Welsh Air Quality website may currently be a fit-for-purpose solution it should be pointed out that the purpose of the website is to provide information, advice and data to stakeholders across Wales and this must not be affected. Careful consideration will be given for the most appropriate method of hosting a central repository if and when additional monitoring data becomes available.

Lead Organisation: to be agreed by the Data Team
9. AQEG Recommendation 8

Recommendation

AQEG recommends that a high time resolution monitoring programme in support of a multivariate receptor modelling study should be developed.

Recommendation Detail

Such a programme would need to employ both comprehensive chemical speciation and a high time resolution (of one hour or better) in order to differentiate between sources of similar composition.

Data Team Response

The Data Team accept that a high time resolution monitoring programme in support of a multivariate receptor modelling study could provide a useful tool for identifying the potential on-site sources. This is a resource intensive exercise that may require a Cost Benefit Analysis to be undertaken. We need to carefully consider how an exercise such as this is developed and run.
10. AQEG Recommendation 9

**Recommendation**

AQEG recommends that an on-site measurement programme should be developed to quantify the emissions from fugitive sources.

**Recommendation Detail**

This should include the temporal variation in emissions and the factors influencing this; and emissions arising from vehicle movements. The latter will require information on vehicle movements across the site.

**Data Team Response**

The Data Team agree that improving the understanding of and data available for fugitive sources within the industrial complex is extremely important. Improving this evidence base is currently incorporated as a key part of developing a comprehensive emissions inventory (see Recommendation 1). As already outlined Tata and other operators on the Steelworks site have already initiated an on-site measurement programme to quantify fugitive emissions and will continue to develop this. The development of robust emissions factors and activity data associated with fugitive emissions is a key aim for this work.

Lead organisation: Tata will be responsible for undertaking an on-site measurement programme. The Data Team will have input into the on-going development and review of outputs from this programme.
11. AQEG Recommendation 10

**Recommendation**

AQEG recommends that the actions set out in this Advice Note should be developed as a programme of work to be taken forward in a coherent and consistent manner.

**Recommendation Detail**

The programme of work should be resourced as an overall package and not carried out in an ad-hoc manner. This should replace the rather ad-hoc approach to studies that appears to have been in place for the last decade and will build on the recent programme of work developed to implement the recommendations of the UWE report. It will require clear leadership from one organisation.

**Data Team Response**

The Data Team are committed to using the recommendations contained within the advice note to review the data team action plan (existing work programme of the group) and revise the existing work programme, which will be overseen by the Steering Group.

Lead organisation: All organisations in the Data Team.
12. AQEG Recommendation 11

Recommendation

AQEG recommends that the working arrangements currently in place should be continued, with all parties contributing in an open and transparent manner.

Recommendation Detail

Data Team Response

The Data Team welcome this recommendation. The Welsh Government will continue to chair the Data Team and overarching Steering Group and provide continued leadership. However, each organisation within the Data Team recognises the importance of their individual role and responsibilities and are committed to delivering against these. Data Team members also recognise the importance of working in partnership and reaffirm the agreed terms of reference of the group. A strong working relationship between organisations has been established and the Data Team is committed to continue to work collectively in a pragmatic open and transparent manner.

Lead organisation: the Data Team and each organisation involved.
13. AQEG Recommendation 12

**Recommendation**

AQEG recommends that there would be merit in the involvement of external peer reviewers to help ensure that the future programme remains focussed and is making best use of the scientific data and analysis resources.

**Recommendation Detail**

**Data Team Response**

The Data Team value the benefit of including external peer reviewers to independently assess the quality and progress of the measures to be contained within the revised work programme. A key priority will be to review the existing action plan and work programme. External peer reviews shall be undertaken by a party that is impartial to the stakeholders of air quality at Port Talbot.
Other Actions

14. Other Action Plans

The recommendations arising from the independent report of the University of the West of England have been superseded by those of AQEG.

The Welsh Government Short term action plan will soon be updated and consulted on. The current version can be downloaded from the Welsh Government website

15. Summary of the AQEG Report Main Findings

- The review undertaken as part of the advice note led the Air Quality Expert Group to produce a series of recommendations that can be broken down into four key areas:

(i) Strategy

- the actions in this advice note should be developed as a programme of work to be taken forward in a coherent and consistent manner;
- the working arrangements currently in place should be continued, with all parties contributing in an open and transparent manner;
- involvement of external peer reviewers to help ensure that the future programme remains focussed and is making best use of the scientific data and analysis resources.

(ii) Monitoring

- review of the available meteorological data to establish whether the meteorological monitoring sites are sufficient to characterise the air flows over the industrial complex and the surrounding area;
- an FDMS PM$_{10}$ monitor should be located to the west of the industrial complex on the coast, co-located with a wind monitor 10 m from the ground. This will allow the contribution of the PM$_{10}$ sources within the industrial complex to be isolated;
- all the PM$_{10}$ measurement sites currently operating should be retained for a minimum of a further two years;
- an on-site measurement programme should be developed to quantify the emissions from fugitive sources;
- a high time resolution monitoring programme in support of multivariate receptor modelling should be developed.

(iii) Modelling

- model the impact of all the sources within the industrial complex on PM$_{10}$ concentrations observed in Port Talbot;
- an initial dispersion modelling exercise should be carried out using readily available information on emissions from all sources, which can be supplemented over time with a more detailed time-resolved emission inventory;

(iv) Data

a central repository established to hold all long-term monitoring data.
16. Summary of the UWE Report
Main Findings

- The majority of PM$_{10}$ recorded at the AURN monitoring site, i.e. the data reported to the EC, appears to be associated with pollution sources from the direction of the steelworks site. However a single source of PM$_{10}$ leading to exceedences can not be identified from the site.

- There has been a general trend for average concentrations of PM$_{10}$ to reduce over the last 9 years, but there has not been a particularly large or noticeable reduction in the frequency or magnitude of peak events.

- There is a tendency for PM$_{10}$ concentrations to be highest in the middle of the day, which could result from grounding of pollution plumes or daytime activities raising dust. PM$_{10}$ concentrations are also highest during the second quarter of the year, although the reason for this is unclear.

- PM$_{10}$ exceedences are sometimes, but not always related to elevated concentrations of CO and SO$_2$ suggesting combustion sources, (N.B. There is no risk of either CO or SO$_2$ leading to a breach of their respective air quality objectives), but are not related to NO$_x$ or PM$_{2.5}$, which are associated with road sources.

- There is a large variation in pollution patterns on different exceedence Days – this study has looked at differences between the correlations of different pollutants, and in the number of hours exceeding the objective concentration. There have been over 300 exceedence Days over the period covered by this study, each with the potential for its own characteristics, particularly when PM$_{10}$ concentrations are analysed in relation to other pollutants and meteorological conditions.

- In order to pinpoint the exact sources of PM$_{10}$ leading to exceedences in the Port Talbot Air Quality Management Area, the report makes a number of recommendations for future work to be undertaken by WG, the regulators and Corus (now Tata). The recommendations include:
  
  o Better use of data available in Neath Port Talbot County Borough Council (NPTCBC) Review and Assessment Reports.
  o Generation of an emissions database and undertaking a new dispersion modelling study.
  o Undertaking new chemical analysis of particulates in the area.
  o Updating the NPTCBC Air Quality Action plan.
  o Updating the WG Short Term Air Quality Action plan.
  o Further information on agreed course of actions following the EAW PM$_{10}$ Permit Review and NPTCBC Corus Permit Review.
  o Additional analysis of data.
Appendix 2 - Dust improvement programmes for Tata IPPC permit site operators

CORUS / TATA IMPROVEMENT CONDITIONS INCLUDED IN THE ENVIRONMENTAL PERMITS FOR THE STEELWORKS AT PORT TALBOT

Only improvement conditions concerning air quality or fugitive releases or particulates have been included.

From BL7108 issued 31 March 2004

9.1.1 The Operator shall complete the requirements specified in Tables 9.1.1A and B by the date specified in that Table, and shall send written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Requirement</th>
<th>Date</th>
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<tbody>
<tr>
<td>9.1.1A.1</td>
<td>The Operator shall, within 18 months of the issue of this Permit, submit a report, to the Agency at the Reporting Address, on the performance and potential environmental improvements for the coke ovens, including coal and coke stockpiles, part of the Permitted Installation. The performance of the process area and releases of key pollutants (sulphur dioxide, PAHs, oxides of nitrogen, particulates releases to air, the indirect releases of significant List 1 and List 2 substances to water and water usage in particular) shall be compared to performance, monitoring frequency, standards and techniques in the appropriate technical guidance, in concentration, % contribution to the Installation releases and in tonnes/unit of production against a base year of 2004 and against the performances of comparable installations. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement and/or improve monitoring quality. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note E2 and should justify, against the BAT criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months against an updated base year (2007; 2010 etc).</td>
<td>31/09/2005</td>
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</tbody>
</table>
| 9.1.1A.2 | The Operator shall, within 24 months of the issue of this Permit, submit a report, to the Agency at the Reporting Address, on the performance and potential environmental improvements for the sinter plant, including raw material and sinter stockpiles, part of the Permitted Installation.  
The performance of the process area and releases of key pollutants (sulphur dioxide, carbon monoxide, PAHs, dioxin & furan, oxides of nitrogen, particulates and metal releases to air in particular) shall be compared to performance, monitoring frequency, standards and techniques in the appropriate guidance, in concentration, % contribution to the Installation releases and in tonnes/unit of production against a base year of 2004 and against the performances of comparable installations.  
For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement and/or improve monitoring quality.  
This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note E2 and should justify, against the BAT criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months against an updated base year (2007; 2010 etc). | 31/03/2006 |
| 9.1.1A.3 | The Operator shall, within 30 months of the issue of this Permit, submit a report, to the Agency at the Reporting Address, on the performance and potential environmental improvements for the blast furnaces part of the Permitted Installation.  
The performance of the process area and releases of key pollutants (sulphur dioxide, PAHs, oxides of nitrogen, particulates releases to air, the indirect releases of significant List 1 and List 2 substances to water and water usage in particular) shall be compared to performance, monitoring frequency, standards and techniques in the appropriate guidance, in concentration, % contribution to the Installation releases and in tonnes/unit of production against a base year of 2004 and against the performances of comparable installations.  
For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement and/or improve monitoring quality.  
This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note E2 and should justify, against the BAT criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months against an updated base year (2007; 2010 etc). | 30/09/2006 |
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<tr>
<th>Section</th>
<th>Text</th>
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<tr>
<td>9.1.1A.4</td>
<td>The Operator shall, within 36 months of the issue of this Permit, submit a report, to the Agency at the Reporting Address, on the performance and potential environmental improvements for the Steel (BOS) plant and Concast parts of the Permitted Installation. The performance of the process area and releases of key pollutants (carbon monoxide, particulates releases to air, the indirect releases of significant List 1 and List 2 substances to water and water usage in particular) shall be compared to performance, monitoring frequency and techniques in the appropriate guidance, in concentration, % contribution to the installation releases and in tonnes/unit of production against a base year of 2004 and against the performances of comparable installations. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement and/or improve monitoring quality. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note E2 and should justify, against the BAT criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months against an updated base year (2007; 2010 etc).</td>
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<tr>
<td>31/03/2007</td>
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<tr>
<td>9.1.1A.6</td>
<td>The Operator shall, within 48 months of the issue of this Permit, submit a report, to the Agency at the Reporting Address, on the performance and potential environmental improvements for the combustion, energy and environment parts of the Permitted Installation. The performance of the process area and releases of key pollutants (sulphur dioxide, oxides of nitrogen, particulates releases to air, the indirect releases of significant List 1 and List 2 substances to water and water usage in particular) shall be compared to performance, monitoring frequency, standards and techniques in the appropriate guidance, in concentration, % contribution to the installation releases and in tonnes/unit of production against a base year of 2004 and against the performances of comparable installations. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement and/or improve monitoring quality. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note E2 and should justify, against the BAT criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months against an updated base year (2007; 2010 etc).</td>
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<tr>
<td>31/03/2008</td>
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<td>9.1.1B.9 (Fugitive VOC &amp; Particulates)</td>
<td>Fugitive emissions shall be reviewed on an annual basis and a summary report detailing such releases and the measures taken to reduce them shall be prepared. In particular the review shall consider the fugitive releases such as particulates from the coke ovens, BOS and Blast furnaces, and VOCs from the BFG and COG pipelines, the coke ovens and the coke oven by-products plant. A copy of the annual summary report shall be sent to the Agency at the Reporting Address.</td>
</tr>
<tr>
<td>9.1.1B.15 (Parts &amp; PM10s)</td>
<td>The Operator shall review the techniques available to minimise the particulate and PM10 releases from the installation as a whole and from the stockpiles, sinter plant, blast furnaces and BOS plant in particular. This review shall also consider the contribution each source of PM10 makes towards the PM10 air quality standards (both current and the 2010 standards). Also the review shall consider the contribution each source of particulates makes towards local deposition. Furthermore each significant source of particulates shall be ‘fingerprinted’ and details of this analysis shall be provided to the Agency at the Reporting Address. The review of techniques to reduce particulates from the installation shall be sent to the Agency at the Reporting Address.</td>
</tr>
<tr>
<td>9.1.1B.19 (AQMP)</td>
<td>The Operator shall review the contribution each process area makes towards statutory air quality standards. Currently these standards include PM10s, sulphur dioxide, oxides of nitrogen, lead, benzene, carbon monoxide and polyaromatic hydrocarbons. For oxides of nitrogen and sulphur dioxide, the contribution each process makes to the vegetation standards shall also be presented. There are proposals for air quality standards for a number of substances including Nickel, Arsenic, Cadmium and Mercury. For these 4 metals, the contribution towards local air quality shall also be assessed. Details of the contributions each process area makes towards local air quality from the installation shall be sent to the Agency at the Reporting Address.</td>
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From Variation Notice RP3730BV issued 20 February 2005

Table 9.1.1: Improvement programme requirements

<table>
<thead>
<tr>
<th>Reference</th>
<th>Requirement</th>
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<tr>
<td>9.1.1B.21</td>
<td>Air quality Management plan</td>
<td>The Operator shall formulate an air quality management plan for the installation aimed at reducing the impact of pollutants emitted from the installation and ensuring it does not significantly contribute to breaches of the National Air Quality Strategy standards/objectives or EU Directive limits. Initially, the plan should be based on current emissions and impact assessment knowledge and developed further from the conclusions drawn from responses made to relevant improvement programme requirements contained within this Permit. The plan should take account of any Local Authority air quality management plans. The Operator shall review the air quality management plan annually and include actions to ensure the aim of the plan is delivered. The initial plan and annual reviews shall be submitted to the Agency.</td>
</tr>
<tr>
<td>9.1.1B.23</td>
<td>In consultation with other Corus sites and having regard to the BREF note for storing materials, the Operator shall develop and implement a system to manage the dust suppression that uses meteorological forecasts and information together with ambient air quality monitoring data to minimise fugitive particulate releases from the stockyard areas. The Operator shall submit written details of the proposed system and an implementation date to the Agency.</td>
<td>31/12/2005</td>
</tr>
<tr>
<td>9.1.1B.24</td>
<td>The Operator shall review measures available to minimise the releases of particulates from the ore and sinter blending beds. The review shall include, amongst the techniques assessed, the feasibility, practicability and cost of providing a cover for the sinter fines beds. The Operator shall submit the written review to the Agency.</td>
<td>31/12/2006</td>
</tr>
</tbody>
</table>

From Variation Notice BP3933LD issued 26 September 2005

Improvement Condition
3.1 After Improvement Condition No. 9.1.1B.24 in Table 9.1.1B: Improvement programme requirements in the variation RP3730BV shall be added:-
Table 9.1.1: Improvement programme requirements

<table>
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<tr>
<th>Reference</th>
<th>Requirement</th>
<th>Date (1)</th>
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<tr>
<td>9.1.1B.25</td>
<td>The Operator shall develop a system and/or procedure for identifying and notifying their contractors, Brambles, of hot or glowing spots on the desulphurisation slag pots at the two desulphurisation slag rabling stations within the Steel plant. The Operator shall submit details of the proposed system to the Agency at the Reporting Address.</td>
<td>30 Oct 2005</td>
</tr>
<tr>
<td>9.1.1B.26</td>
<td>The Operator in consultation with their contractors Brambles, shall develop and implement a safe and environmentally acceptable system of work for dealing with desulphurisation pots with hot or glow spots that avoids immediate tipping (ie less than 1 hour standing) of the pot contents. The Operator shall submit details of the implemented system to the Agency at the Reporting Address.</td>
<td>31 Dec 2005</td>
</tr>
<tr>
<td>9.1.1B.27</td>
<td>The Operator shall review the methods available for the desulphurisation of molten iron. The review shall include the use of alternatives to using calcium carbide to achieve low sulphur level in the desulphurised molten iron produced at Port Talbot. The review shall also consider how each technique can be applied to the desulphurisation equipment at Port Talbot. The Operator shall submit the written review to the Agency at the Reporting Address.</td>
<td>31 Dec 2005</td>
</tr>
</tbody>
</table>

From Variation Notice BL7108IMV008 issued 29 June 2009

9 Improvement programme

9.1.1 The Operator shall complete the requirements specified in Table 9.1.1 by the date specified in that Table, and shall send written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

Table 9.1.1: Improvement programme requirements

<table>
<thead>
<tr>
<th>Reference</th>
<th>Requirement</th>
<th>Date (1)</th>
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<tr>
<td>9.1</td>
<td>Monitor the performance of the new quench tower to demonstrate that the tower meets the design performance specification - to include energy use, water make-up and emission of pollutants into water and air. The monitoring of emissions into air shall include particulate matter, using a suitable sampling method performed over a representative number of quenches, to demonstrate that the concentration of particulate matter does not exceed 50g/tonne of unprocessed coke produced during the test. A written report shall be submitted to the Environment Agency.</td>
<td>31 Dec 2009</td>
</tr>
<tr>
<td>9.2</td>
<td>Undertake an assessment of the economic and environmental benefits achieved by the utilisation of BOS gas – to include, but not limited to: • The efficiency of BOS gas energy recovery achieved by the BOS gas collection system. • The reduction in use of natural gas and increase in on-site electricity generation. • The priority use of COG • The performance of the BOS gas recovery abatement equipment in reducing the concentration of particulate matter in the treated fuel gas streams. • The overall reduction/change in the key emissions, including SO2, NOx and particulate, released into the environment from the BOS gas collecting system and combustion appliances across the Works The assessment shall cover a 12 month period following the commissioning into service of the BOS gas recovery and utilisation scheme. A written report shall be submitted to the Environment Agency.</td>
<td>31 Dec 2010</td>
</tr>
<tr>
<td>9.3</td>
<td>(Not related to PM10)</td>
<td>31 Mar 2010</td>
</tr>
</tbody>
</table>
9.4 Identify the options for reducing the concentration of SO2 emitted from the Sinter Plant main stack to below 300mg/Nm3 as an hourly average and, identify the options for reducing the concentration of particulates emitted from the Sinter Plant main stack to below 30mg/Nm3 as an hourly average and 10mg/Nm3 as an annual average of hourly averages. When identifying options, reference should be made to UK and EU BAT Guidance and include, but not limited to:

In the case of SO2 emissions:
- Selection, control and blending of raw materials and revert/waste materials.
- Waste gas recirculation and waste heat recovery.
- Control of basicity in the sinter strand.
- Waste off-gas desulphurisation.

In the case of particulate emissions:
- Waste gas recirculation.
- Wet scrubbing systems and bag filters

Undertake a study into the technical and economic feasibility of reducing SO2 and particulate emissions from the Sinter Plant main stack with the objective of achieving at least the above emission concentrations.


9.5 Identify the options for reducing the concentration of particulates emitted from the BOS Plant secondary fume collection systems to below 10mg/Nm3 as an hourly average. When identifying options, reference should be made to UK and EU BAT Guidance and include, but not limited to:

- Wet scrubbing systems
- Bag filters

Undertake a study into the technical and economic feasibility of reducing particulate emissions from the BOS Plant secondary fume collection systems with the objective of achieving at least the above emission concentration.


9.6 Identify the options for reducing the concentration of particulates emitted from the Cast House fume collection systems on the Blast Furnaces to below 10mg/Nm3 as an hourly average. When identifying options, reference should be made to UK and EU BAT Guidance and include, but not limited to:

- Wet scrubbing systems
- Bag filters

Undertake a study into the technical and economic feasibility of reducing particulate emissions from the Cast House fume collection systems on the Blast Furnaces with the objective of achieving at least the above emission concentration.


9.7 Undertake a study to quantify the collection efficiency of the fume collection systems in the Cast House and BOS Plant. The study shall propose a methodology for monitoring and assessing the fume collection efficiency for agreement by the Environment Agency before the study commences.

9.8 (Not related to PM10) 31 Dec 2009
9.9 The Operator shall carry out a stack height assessment for the Margam A & B boilers and No 3 Boiler to demonstrate the benefits of raising the stack height in order to improve dispersion of pollutant gases, taking into account the surrounding structures.
A written report shall be submitted to the Environment Agency.

9.10 (Not related to PM10) 31 Mar 2010
9.11 (Not related to PM10) 31 Mar 2010
9.12 The Operator shall assess the benefits of active carbon (lignite) injection into the Sinter Plant main off-gas stream to reduce the concentration of dioxin/furan.
A written report on the progress in reducing dioxin/furan concentrations shall be submitted to the Environment Agency on the specified date and annually thereafter.

(1) Or any alternative date agreed in writing by the Environment Agency

From Variation Notice BL7108IMV009 issued 10 August 2010

9 Improvement programme

9.1.1 The Operator shall complete the requirements specified in Table 9.1.1 by the date specified in that Table, and shall send written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

Table 9.1.1: Improvement programme requirements

<table>
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<tr>
<th>Reference</th>
<th>Requirement</th>
<th>Date</th>
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<tr>
<td>9.4</td>
<td>The Operator shall develop plans and a program for greening and landscaping the steelworks site focussing and prioritising on the areas of high fugitive dust to reduce their impact both on and off site. A copy of the site greening plan and the program shall be sent to the Agency at the Reporting Address.</td>
<td>31/10/2010</td>
</tr>
<tr>
<td>9.5</td>
<td>The Operator shall develop plans and a program for attaining 100% routine granulation of blast furnace slag. A copy of the 100% slag granulation plan and the program shall be sent to the Agency at the Reporting Address.</td>
<td>30/12/2010</td>
</tr>
<tr>
<td>9.6</td>
<td>The Operator shall develop plans and a program for improving the network of site roads and their management to reduce dust and PM10 lift off from their use. A copy of the road improvements plan and the program shall be sent to the Agency at the Reporting Address.</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>9.7</td>
<td>The Operator shall develop plans and a program for improving the movement of materials around the steelworks site so reducing dust and PM10 lift off from their movements. A copy of the material movements improvement plan and the program shall be sent to the Agency at the Reporting Address.</td>
<td>31/04/2011</td>
</tr>
<tr>
<td>9.8</td>
<td>The Operator shall develop a reporting framework for assessing and reporting annually and quarterly the data produced from the on site ambient air quality monitoring network. A copy of the assessment and reporting framework shall be submitted to the Agency at The Reporting Address.</td>
<td>31/10/2010</td>
</tr>
<tr>
<td>9.9</td>
<td>The Operator shall investigate the installation of a continuous emissions monitor (CEM) for particulates from the degasser stack (A18). A written report on the costs and benefits of installing a particulates CEM on this release point (A18) shall be sent to the Agency at the Reporting Address.</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>9.10</td>
<td>The Operator shall summarise the investigative work undertaken into identifying the source(s) of PM10s from within the steelworks site. A copy of the written report shall be sent to the Agency at the Reporting Address.</td>
<td>31/11/2010</td>
</tr>
<tr>
<td>9.11</td>
<td>The Operator shall review all the Coke, Iron and Steel processes operated on site against the latest BREF guidance note. The Operator shall assess where it does not meet indicative BAT. The Operator shall submit a written report to the Agency at the Reporting Address detailing its comparison against the latest BREF guidance note.</td>
<td>31/06/2011</td>
</tr>
<tr>
<td>9.12</td>
<td>The Operator shall submit a program for attaining BAT for those areas that do not meet the BREF guidance note standards. The plan shall be submitted in writing</td>
<td>30/12/2011</td>
</tr>
</tbody>
</table>
to the Agency at the Reporting Address.

9.13 The Operator shall review the controls used to minimise PAH releases from the sinter plant and fugitive releases of fume from the coke ovens. The Operator shall submit plans for improving the controls of fugitive fume from the coke ovens to achieve TLCF of 99.5%; DLFC of 99.5% as quarterly means by 31/12/2012.

9.14 The Operator shall review the systems and equipment needed to recover the gas from the bell less top charging system on both furnaces and to submit a plan for minimising the diffuse releases from the bell less top system on each of the blast furnaces by using this technology or using equivalent technical measures. A copy of the report on the equipment and system needs together with the plan shall be sent to the Agency as the reporting address.

31/06/2011

31/12/2010

**From Variation Notice**

From Variation Notice EPR/BL7108IM/V011 issued 2 Feb 2012

Table 9.1.1 shall be amended by adding:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Requirement</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.15</td>
<td>The operator shall carry out appropriate impact assessments to comprehensively identify and prioritise available potential measures to reduce PM$_{10}$ emissions, from point and fugitive sources, from within the installation to the Air Quality Management Area. For point source emissions, the impact assessments may include but not be limited to the use of the Environment Agency’s H1 software tool. For point source and fugitive emissions, the impact assessments and potential measures should comprise of all those identified in all relevant BREF notes and any additional measures not currently defined as BAT.</td>
<td>Reporting dates detailed in 9.16, 9.17 and 9.18 below.</td>
</tr>
<tr>
<td>9.16</td>
<td>The operator shall submit to the Environment Agency a written report of it’s initial findings pursuant to condition 9.15. The initial report shall comprise details of schemes that shall be implemented in the short term and the rationale for the implementation of those schemes for reducing emissions of PM$_{10}$ from point and fugitive sources.</td>
<td>30/4/2012</td>
</tr>
<tr>
<td>9.17</td>
<td>The operator shall submit to the Environment Agency a written report of the full and final impact assessments on the Air Quality Management Area conducted pursuant to condition 9.15. The report shall include, but not be limited to, an impact assessment of PM$<em>{10}$ emissions based upon a comprehensive PM$</em>{10}$ emissions inventory.</td>
<td>30/4/2013</td>
</tr>
<tr>
<td>9.18</td>
<td>The operator shall submit to the Environment Agency a detailed written report of all the available improvement options pursuant to condition 9.15. The report shall also include a prioritised assessment of improvement opportunities for reducing emissions of PM$_{10}$ from point and fugitive sources around the site. The prioritised assessment of opportunities should comprise of a thorough analysis of the anticipated benefits based upon the output of the report pursuant to condition 9.17, as well as the effectiveness, practicality, timescale for implementation and cost of the measures considered. Any of these measures which have been approved in writing by the Environment Agency shall be implemented by the operator in accordance with the approved timescale</td>
<td>28/6/2013</td>
</tr>
</tbody>
</table>

These improvement conditions are shown by way of example. Additional variations were issued to Tata, Harsco and Cambrian Stone in February 2012.

PPC Team, Environment Agency
January 2012
Appendix 3 - Regulatory interventions carried out by the Environment Agency at Port Talbot steelworks

REGULATIONS
- The Port Talbot steelworks site is regulated under a number of regulatory regimes including the Environmental Permitting Regulations (iron and steel process and landfills), Radioactive Substances Regulation, Control of Major Accident Hazards, water abstraction, Producer Packaging and EU Emissions Trading Scheme. Some of the interventions go beyond the straight regulatory role.

INTERVENTIONS
- Provision of advice and guidance
- Inspections
- Audits
- Assessment of monitoring returns
- Assessment of unauthorised releases
- Assessment of improvement conditions
- Assessing other permit-related submissions
- Reviewing of permits
- Issuing of variation notices to revise permits or add further conditions (eg improvement conditions)
- Assessing pollution inventory responses
- Monitoring of water releases
- Reviewing OPRA profile submissions
- Investigation of complaints (eg from members of the public)
- Involvement in PM10 breach day investigations
- Involvement in PM10 data group work (including AQEG recommendations)
- Involvement in PM10 regulators group work
- Involvement in PM10 steering group work
- (Involvement in LSB Air Quality project work)
- Waste minimisation and the diversion of waste from landfill
- BAT assessment and review (best available techniques)
- Escalation of contact as breach day numbers increased (moving up the Agency’s management chain)
- Director level engagement
- Influencing investment on the steelworks site
- Liaison meeting attendance (eg with local councillors)
- Involvement with Industrial Forum (involving all operators on the steelworks site)
- Project involvement with air quality (PM10) around the site – including the deployment of a Mobile Monitoring Facility in Prince Street, Port Talbot
- Assessment of on-site air quality monitors
- Involvement in Metals Sector Group
- Influencing bench-marking between the steelworks sites
- Carrying out enforcement actions (including scoring of an permit breaches against the compliance classification scheme)
Appendix 4 - Section from Neath Port Talbot Unitary Development Plan dealing with Air Quality

8.19 POLICY ENV15 – AIR QUALITY

Proposals which would be likely to have an unacceptable adverse effect on air quality, or would expose people to an unacceptable level of air pollution will not be permitted.

8.19.1 Through its control over where different types of development can be located, the UDP can play an important role in helping improve air quality. This is part of a co-ordinated approach including the Authority’s and Environment Agency’s various roles with regard to regulation under Pollution Prevention and Control.

8.19.2 While concerned to ensure that the area makes its contribution to addressing global air pollution problems, current assessments of air quality, as part of the statutory air quality management process against objectives set for the seven air pollutants allocated for local air pollution control by the Welsh Assembly Government, have confirmed a local problem with particulates (PM$_{10}$). The Authority declared the Taibach - Margam area as a Local Air Quality Management Area (AQMA) under the 1995 Environment Act. As a result the sources of PM$_{10}$ in this area, including sources of PM$_{10}$ in the surrounding Air Quality Plan Area potentially affecting the AQMA are important concerns in the preparation of the plan and when taking decisions which affect the AQMA.

8.19.3 A significant contribution to the problem (which is defined as the number of occasions when the Assembly Government’s Air Quality Objective for PM$_{10}$ is exceeded) has been attributed to processes within the Corus Steel works. It had been anticipated that the rebuilding and upgrading of Blast Furnace No. 5 following an explosion in 2001 would have substantially addressed the problem. Following re-commissioning, however, PM$_{10}$ levels have risen above the objective although not to levels as high as previously. As a result the AQMA is likely to remain in force until the objectives are met.

8.19.4 Proposals for new or expanded activities or developments will be resisted on air quality grounds in the following circumstances:
   a) Within the Taibach/Margam AQMA or Air Quality Action Plan Area where the activity or development will create significant additional PM$_{10}$ within the AQMA and give rise to significant risk of additional breaches of the Air Quality Objective;
   b) Where the development or activity will cause a significant risk that any of the local Air Quality Objectives or Limits Values set by the Assembly Government or established Environmental Bench Marks for other air pollutants will be breached. Any such proposals will be assessed in accordance with the methodology in the Environment Agency HORIZONTAL GUIDANCE NOTE IPPC H1: “Environmental Assessment and Appraisal of BAT” MODULE 3 Quantify Impacts – ISBN 011 3101082.

8.19.5 Where existing businesses or organisations put forward a proposal which would result in a net improvement in emissions, and this would not prejudice the likelihood of emissions in the whole of the AQMA area breaching the national targets, the proposal would be likely to be considered favourably in terms of air pollution considerations.
8.19.6 Where there is the potential for a proposal to have an unacceptable impact on air quality, the developer is likely to be required to prepare a specialist assessment of the impacts of the proposal. This should take into account any relevant proposals to reduce polluting emissions and any planning permissions and commitments for proposals which would create emissions which would affect the area concerned.

8.19.7 The Authority will assess proposals for new sensitive uses (such as housing) within the area on air quality grounds (see policy ENV 27).

8.19.8 Policies throughout the plan are designed to tackle air quality problems and they include the location and design of developments and new roads, measures to reduce traffic, to increase the recycling of waste, energy efficiency measures and the encouragement of renewable energy.

8.19.9 While improvements in technology will help reduce emissions from industry and road and rail traffic, it is likely that the Assembly Government will introduce more stringent air quality targets. The Authority will carefully monitor the situation and address any need to amend its policies when the UDP is reviewed.