



# Neath Port Talbot County Borough Council

## 2016 Air Quality Progress Report

In fulfillment of Part IV of the Environment Act 1995  
Local Air Quality Management

Date (July, 2016)

Neath Port Talbot County Borough Council

<b>Local Authority Officer</b>	M. Hooper
<b>Department</b>	Environment
<b>Address</b>	Quays, Brunel Way, Neath SA11 2GG
<b>Telephone</b>	01639 686517
<b>E-mail</b>	m.hooper@npt.gov.uk
<b>Report Reference number</b>	E2/16/9/2016 PR
<b>Date</b>	July 2016

## Executive Summary

The Progress Report covering the period up to the end of 2015 has identified the need to proceed to a Detailed Assessment for nitrogen dioxide (NO<sub>2</sub>) at Victoria Gardens, Neath.

The long-term Air Quality Objective for PM<sub>10</sub> was not breached in Port Talbot. However, the short-term average was breached at Port Talbot Fire Station, for the first time since 2007. However, compliance may be achieved once the effect of natural sources such as sea salt are taken into account. These calculations had not been completed by Welsh government at the time of writing. The Taibach/Margam AQMA will continue to remain in force.

There were no exceedances of Air Quality Objectives for sulphur dioxide (SO<sub>2</sub>), lead (Pb) or carbon monoxide (CO).

Fine particulates of less than 2.5 microns in size (PM<sub>2.5</sub>) easily complied with the EU Target which is to be complied with by 2015.

Ozone is not covered by Local Air Quality Management because trans-boundary pollution can have a significant effect upon local results. Neath Port Talbot, like other parts of the country, experiences significant numbers of exceedances of the UK air quality standard. The trend is one of gradual improvement over time.

Concentrations of polyaromatic hydrocarbons exceed the UK Air Quality Objective of 0.25 ng/m<sup>3</sup>, but are less than the EU Target value of 1 ng/m<sup>3</sup>. The trend line shows that concentrations are increasing over time.

Arsenic and cadmium easily comply with the EU Target, both in Port Talbot and Pontardawe.

Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe, except Tawe Terrace. Nickel levels decreased substantially at Tawe Terrace during 2015.

The highest rates of fallout of large particles (nuisance dust) were measured in Port Talbot at Port Talbot Fire Station and Prince Street. The highest ever fallout rates were recorded at Prince Street.

The next actions to be taken will be to:

- Submit a LAQM Progress report.
- Submit a LAQM Detailed Assessment of NO<sub>2</sub> at the junction of Victoria Gardens and Cimla Road in Neath. This shall be carried out in respect of the long-term Air Quality Objective.

# Table of Contents

<b>Executive Summary .....</b>	<b>i</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Description of Local Authority Area.....	1
1.2 Purpose of Progress Report .....	2
1.3 Air Quality Objectives .....	2
1.4 Summary of Previous Review and Assessments.....	4
<b>2 New Monitoring Data .....</b>	<b>8</b>
2.1 Summary of Monitoring Undertaken .....	8
2.2 Comparison of Monitoring Results with Air Quality Objectives .....	25
2.3 Other Pollutants Monitored .....	49
<b>3 New Local Developments.....</b>	<b>93</b>
3.1 Road Traffic Sources .....	93
3.2 Other Transport Sources .....	93
3.3 Industrial Sources .....	93
3.4 Commercial and Domestic Sources.....	93
3.5 New Developments with Fugitive or Uncontrolled Sources .....	93
<b>4 Local / Regional Air Quality Strategy .....</b>	<b>94</b>
<b>5 Planning Applications .....</b>	<b>95</b>
<b>6 Air Quality Planning Policies .....</b>	<b>96</b>
<b>7 Local Transport Plans and Strategies .....</b>	<b>100</b>
<b>8 Implementation of Action Plans.....</b>	<b>101</b>
<b>9 Conclusions and Proposed Actions.....</b>	<b>105</b>
9.1 Conclusions from New Monitoring Data.....	105
9.2 Conclusions relating to New Local Developments.....	105
9.3 Other Conclusions .....	105
9.4 Proposed Actions.....	106

## Neath Port Talbot County Borough Council

### List of Tables

Table 1.1 - Air Quality Objectives included in Regulations for the purpose of LAQM in Wales	3
Table 1.2 - Summary of previous air quality reports	6
Table 2.1 – Details of Automatic Monitoring Sites	12
Table 2.2 – Details of Non- Automatic Monitoring Sites	19
Table 2.3 – Results of Automatic Monitoring for NO <sub>2</sub> : Comparison with Annual Mean Objective	26
Table 2.4 – Results of Automatic Monitoring for NO <sub>2</sub> : Comparison with 1-hour Mean Objective	28
Table 2.5 – Results of NO <sub>2</sub> Diffusion Tubes 2015	30
Table 2.6 – Results of NO <sub>2</sub> Diffusion Tubes (2011 to 2015)	36
Table 2.7 – Results of Automatic Monitoring for PM <sub>10</sub> : Comparison with Annual Mean Objective	41
Table 2.8 – Results of Automatic Monitoring for PM <sub>10</sub> : Comparison with 24-hour Mean Objective	43
Table 2.9 - Results of Non-Automatic Monitoring for PM <sub>10</sub> : Comparison with Annual Mean Objective	45
Table 2.10 – Results of Automatic Monitoring for SO <sub>2</sub> : Comparison with Objectives	48
Table 2.11 - Results of Automatic Monitoring of carbon monoxide	49
Table 2.12 - Annual ozone exceedances 2000 – 2015	51
Table 2.13 - Benzo[a]pyrene annual averages 1999-2015	52
Table 2.14 - Annual average metal concentrations during 2015	56
Table 2.15 - Fallout categories as defined by NPT	59
Table 2.16 - Sites ranked by average fallout level (mg/m <sup>2</sup> /day) 2015	89
Table 2.17 - Long term deposition rates	91
Table 9.1 - Action Plan Progress	102

### List of Figures

Figure 1.1 Taibach Margam AQMA	4
Figure 2.1 Map of Automatic PM <sub>10</sub> Monitoring Sites	9
Figure 2.2 Map of Automatic NO <sub>2</sub> Monitoring Sites	10
Figure 2.3 NO <sub>2</sub> analyser at Cimla Road/Victoria Gardens in Neath	11
Figure 2.4 NO <sub>2</sub> analyser at Pontardawe Post Office	11
Figure 2.5 –NO <sub>2</sub> diffusion tube Sites	14
Figure 2.6 - Location of NO <sub>2</sub> diffusion tubes near Port Talbot	15
Figure 2.7 Location of NO <sub>2</sub> diffusion tubes in Briton Ferry	16
Figure 2.8 - Location of NO <sub>2</sub> diffusion tubes in Neath	17
Figure 2.9 - Location of NO <sub>2</sub> diffusion tubes in Neath	18
Figure 2.10 – Trends in Annual Mean NO <sub>2</sub> Concentrations Measured at Automatic Monitoring Sites	27
Figure 2.11 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites	38
Figure 2.12 Screenshot of NO <sub>2</sub> with distance calculator spreadsheet	40
Figure 2.13 – Trends in Annual Mean PM <sub>10</sub> Concentrations	42
Figure 2.14 – Trends in PM <sub>10</sub> exceedance days	44
Figure 2.15 Trends in PM <sub>10</sub> exceedances of the daily averaged Air Quality Objective at Port Talbot AURN	46
Figure 2.16 - Days of ozone exceedances of the UK recommended AQO since 2000	51
Figure 2.17 - Benzo[a]pyrene 1999-2014	53
Figure 2.18 - Nickel levels in Swansea Valley 1972 – 2014	56
Figure 2.19 Location of nickel monitoring stations in the Swansea Valley	57
Figure 2.20 Deposit gauge locations	63
Figure 2.21 Cil Carne Farm pie charts	64
Figure 2.22 Cil Carne Farm fallout rates	65
Figure 2.23 Prince Street pie charts	66
Figure 2.24 Prince Street fallout rates	67
Figure 2.25 Port Talbot Fire Station pie charts	68
Figure 2.26 Port Talbot Fire Station fallout rates	69
Figure 2.27 Eglwys Nunydd Reservoir pie charts	70
Figure 2.28 Eglwys Nunydd fallout rates	71
Figure 2.29 Gwaen Cae Gurwen pie charts	72
Figure 2.30 Gwaen Cae Gurwen fallout rates	73
Figure 2.31 Tairgwaith pie charts	74
Figure 2.32 Tairgwaith fallout rates	75
Figure 2.33 Cwmgwrach pie charts	76
Figure 2.34 Cwmgwrach fallout rates	77
Figure 2.35 Glynneath pie charts	78
Figure 2.36 Glynneath fallout rates	79

## Neath Port Talbot County Borough Council

Figure 2.37 Onllwyn pie charts	80
Figure 2.38 Onllwyn fallout rates	81
Figure 2.39 Little Warren pie charts	82
Figure 2.40 Little Warren fallout rates	83
Figure 2.41 Dyffryn School pie charts	84
Figure 2.42 Dyffryn School fallout rates	85
Figure 2.43 Cwmllynfell pie charts	86
Figure 2.44 Cwmllynfell fallout rates	87
Figure 2.45 Comparison of average fallout rates, 2012	88
Figure 2.46 Long term deposition rates	90
Figure A1 Pontardawe Post Office - Bias adjustment spreadsheet -	107
Figure A1 Port Talbot Fire Station - Bias adjustment spreadsheet -	108
Figure A1 Cimla Road - Bias adjustment spreadsheet -	108

### Appendices

Appendix A: QA/QC Data	107
Appendix B: Raw NO2 Data	110

# 1 Introduction

## 1.1 Description of Local Authority Area

The County Borough of Neath Port Talbot covers an area of 44,126 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 139,800 (2011 Census) and contains 63,978 dwellings (2011 Census). While over recent decades the overall population trend has been of gradual decline, population figures since the 2001 Census indicate population increases which have been predominantly fuelled by internal migration from other areas of the UK and neighbouring local authorities. The main demographic challenges to the County Borough are an aging population where it is projected that the population aged over 65 years old will increase by 35% by 2023, long term ill health, 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.

## 1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

For Local Authorities in Wales, Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in **Wales** are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrammes per cubic metre,  $\text{mg}/\text{m}^3$  for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).



**Neath Port Talbot County Borough Council**

**Table 1.1 – Air Quality Objectives included in Regulations for the purpose of LAQM in Wales**

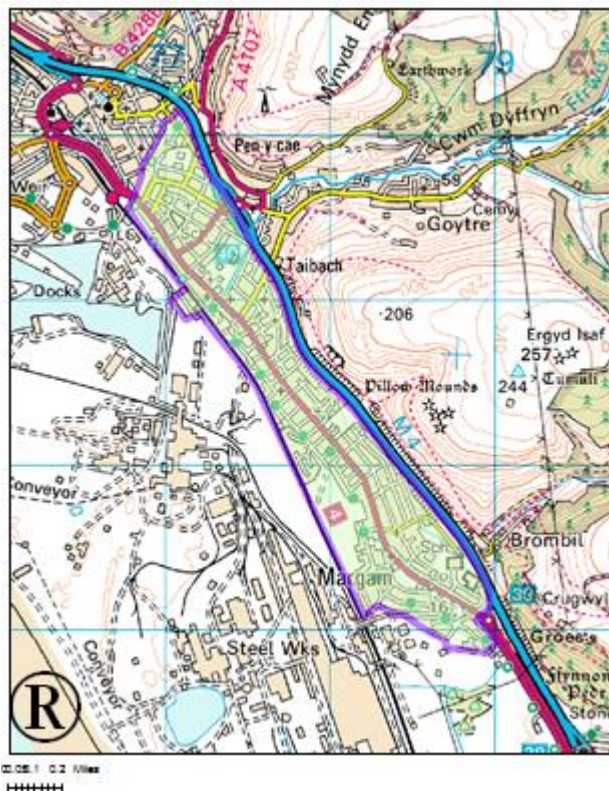
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 µg/m <sup>3</sup>	Annual mean	31.12.2011
1,3-butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particulate matter (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

The 2000 review and assessment of air quality concluded that it would be necessary to declare an Air Quality Management Area for PM<sub>10</sub> in Port Talbot. This was due the predicted failure to achieve the Government's Air Quality Objective for PM<sub>10</sub> by the deadline of 31st December 2004 without intervention.

As a consequence the Taibach Margam AQMA was declared by the Council on 11th May 2000 and was in force effective from 1st July 2000. The AQMA is shown shaded in Figure 1.1 below.

**Figure 1.1 Taibach Margam AQMA**



The 2003 Updating and Screening Assessment showed that there was no need to proceed to a detailed assessment in respect of all but two pollutants, nitrogen dioxide and PM<sub>10</sub>. Nitrogen dioxide measurements at Victoria Gardens, Neath had shown some increases that merited further investigation. PM<sub>10</sub> measurements at Port Talbot had continued to require further measurement, especially as improvements to a blast furnace might have been expected to abate emissions somewhat.

The subsequent 2004 Detailed Assessment of nitrogen dioxide and PM<sub>10</sub> showed that it would not be necessary to declare an AQMA in the vicinity of Victoria Gardens. PM<sub>10</sub> concentrations were found to increase following re-commissioning of blast furnace number 5 at the steelworks. However, the numbers of exceedances were not as numerous as those recorded prior to the re-build of the furnace and the incorporation of cast house fume arrestment.

## Neath Port Talbot County Borough Council

The 2006 USA showed that it would be necessary to proceed to a Detailed Assessment in respect of nitrogen dioxide. Several busy roads were identified for which accurate speed information was not available. Therefore it would necessary to deploy diffusion tubes in order to assess nitrogen dioxide levels at these locations. Measurements of PM<sub>10</sub> would continue as before.

In 2007 the Detailed Assessment of nitrogen dioxide showed that none of the 19 roadside sites identified in the 2006 USA breached the annual average Air Quality Objective. However, two sites were close to the Objective and one site, Water Street, Port Talbot was at risk of exceeding. Diffusion tube monitoring continued at these locations.

The 2008 air quality report revealed compliance with PM<sub>10</sub> 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<sub>10</sub> 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 following improved traffic management and reducing volumes of traffic meant 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<sub>2</sub> analysers at these locations.

An Updating and Screening Assessment was reported in August 2012. This identified the need to proceed to a Detailed Assessment of nitrogen dioxide at Swansea Road, Pontardawe and Victoria Gardens, Neath. The report also identified the need to proceed to a Detailed Assessment for PM<sub>10</sub> at respect of Prince Street, Margam.

An Air Quality Progress Report was produced in 2013, which identified a breach of the short term air quality objective for PM<sub>10</sub> at Prince Street in Port Talbot using equipment owned by Natural Resources Wales (NRW). A new monitor was to be installed in 2014 to replace the NRW device, which was relocated. Consequently, the report identified the need to proceed to a Detailed Assessment for PM<sub>10</sub> at respect of Prince Street, Margam.

A Detailed Assessment of nitrogen dioxide was reported in 2013. This showed that neither air quality objective were breached at Victoria Gardens in Neath. However, a

## Neath Port Talbot County Borough Council

property at 1 Victoria Gardens (39.8 µg/m<sup>3</sup>) was close to exceeding the short term Air Quality Objective (AQO).

An Updating and Screening Assessment was reported in 2015. This identified the need to proceed to a Detailed Assessment of nitrogen dioxide at Swansea Road, Pontardawe and Victoria Gardens, Neath.

A Detailed Assessment of PM<sub>10</sub> was reported in 2015. This examined data from 8 sites in Port Talbot, but none were found to breach air quality objectives. Results at Prince Street were more in line with those at Port Talbot Fire Station.

**Table 1.2 Summary of previous air quality reports**

<b>Report</b>	<b>Date produced</b>	<b>Outcomes</b>
Annual air quality report	1998	Summary of routine measurements.
Annual air quality report	1999	Summary of routine measurements.
Annual air quality report	2000	Summary of routine measurements.
2000 Review and assessment of air quality	February 2000	AQMA for PM <sub>10</sub> required for Port Talbot.
Annual air quality report	2001	Summary of routine measurements.
Annual air quality report	2002	Summary of routine measurements.
Updating and Screening Assessment of Air Quality	July 2003	Detailed assessment required for NO <sub>2</sub> and PM <sub>10</sub> .
Annual air quality report	2003	Summary of routine measurements.
Annual air quality report	2004	Summary of routine measurements.
Detailed Assessment of air quality	November 2004	No AQMA required in respect of NO <sub>2</sub> at Victoria Gardens. PM <sub>10</sub> problems at Port Talbot improved, but not enough to warrant revocation of AQMA.
Annual air quality report	2005	Summary of routine measurements.
Updating and Screening Assessment	April 2006	Detailed Assessment required in respect of NO <sub>2</sub> at several busy roads.
Annual air quality report	2006	Summary of routine measurements.
Detailed Assessment	April 2007	No AQMAs required for NO <sub>2</sub> , but monitoring to continue at sites "at risk" of exceedance.
Annual air quality report	2007	Summary of routine measurements.

## Neath Port Talbot County Borough Council

Annual air quality report	2008	Summary of routine measurements.
Updating and Screening Assessment	May 2009	Detailed Assessment required in respect of NO <sub>2</sub> at Water Street, Port Talbot.
Detailed Assessment of air quality	2010	No AQMA required but another Detailed Assessment recommended for Water Street.
Progress report	2010	Detailed Assessment recommended for 2 sites in Pontardawe and Neath.
Detailed Assessment of air quality	2011	Water Street issue now resolved, but continuous analysers to be deployed at 2 sites in Pontardawe and Neath.
Updating and screening assessment	2012	Detailed Assessment for NO <sub>2</sub> recommended for 2 sites in Pontardawe & Neath. Detailed Assessment for PM <sub>10</sub> recommended for Prince Street in Port Talbot.
Progress report	Aug 2014	Detailed Assessment of PM <sub>10</sub> at Prince Street in Port Talbot is recommended. New PM <sub>10</sub> monitor required at this site.
Detailed Assessment of air quality	Aug 2014	No breach of short term AQO for NO <sub>2</sub> at Victoria Gardens, but one property is very close to exceeding.
Updating and Screening Assessment	Nov 2015	Detailed assessment recommended for Victoria Gardens site in Neath.
Detailed Assessment of air quality	Nov 2015	Detailed Assessment of PM <sub>10</sub> at 8 sites in Port Talbot. No breaches of air quality objectives.

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Measurements of carbon monoxide (CO), fine particulates (PM<sub>10</sub>), sulphur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>) are made continuously at Port Talbot Fire Station as part of the Automatic Urban and Rural Network (AURN). The site location is shown in Figure 2.1. Measurements are made either every 15 minutes or every hour depending on the pollutant concerned. The National Environmental Technology Centre (NETCEN) and their contractors (Bureau Veritas) collect the data from the Fire Station site and this is then subjected to a rigorous quality assurance procedure, prior to dissemination via the Internet. The site is initially contacted via modem and the data collected at regular intervals. Data is automatically scaled in accordance with the latest calibrations (where appropriate) and subjected to an initial inspection prior to dissemination within one hour of receipt. Subsequently, data remains in this format until a final ratification is carried out, by NETCEN, normally in three-month blocks. Some care should therefore be exercised when relying upon statistics not yet subject to final ratification. All data for 2015 has now been fully ratified and can therefore be reported with confidence.

Nitrogen dioxide is continuously measured at the junction of Victoria Gardens and Cimla Road in Neath and near to Pontardawe Post Office. The analysers are MCERTS certified and are subject to QA/QC audits and data ratification by Ricardo-AEA under a contract that also ensures that data is disseminated via the Welsh Air Quality Forum website. The instruments are covered by service contracts.

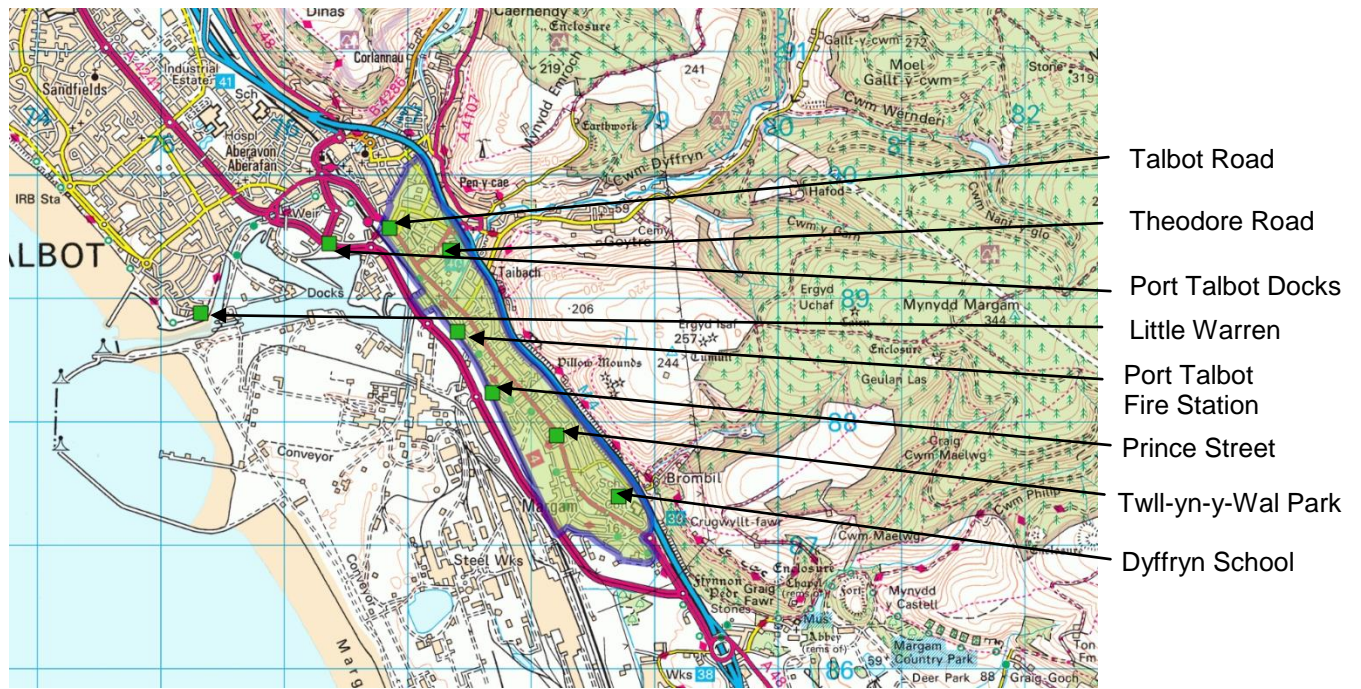
There are a total of eight PM<sub>10</sub> analysers deployed in or near to the AQMA by the Council. All are Rupprecht & Patashnick TEOM FDMS units with type CB driers. Analysers owned by Neath Port Talbot Council are all covered by service contracts and QA/QC contracts with Ricardo-AEA. Calibrations of gas analysers are carried out on an approximately fortnightly basis by the Council and Ricardo-AEA carry out bi-annual site audits at all locations.

Data polled by Ricardo-AEA can be found on the Welsh Air Quality Forum website.

<http://www.welshairquality.co.uk/>

Figures 2.1 to 2.4 show the locations of the monitors.

Figure 2.1 Map of Automatic PM<sub>10</sub> Monitoring Sites



Note: the blue line denotes the border of the AQMA.

Figure 2.2 Map of Automatic NO<sub>2</sub> Monitoring Sites

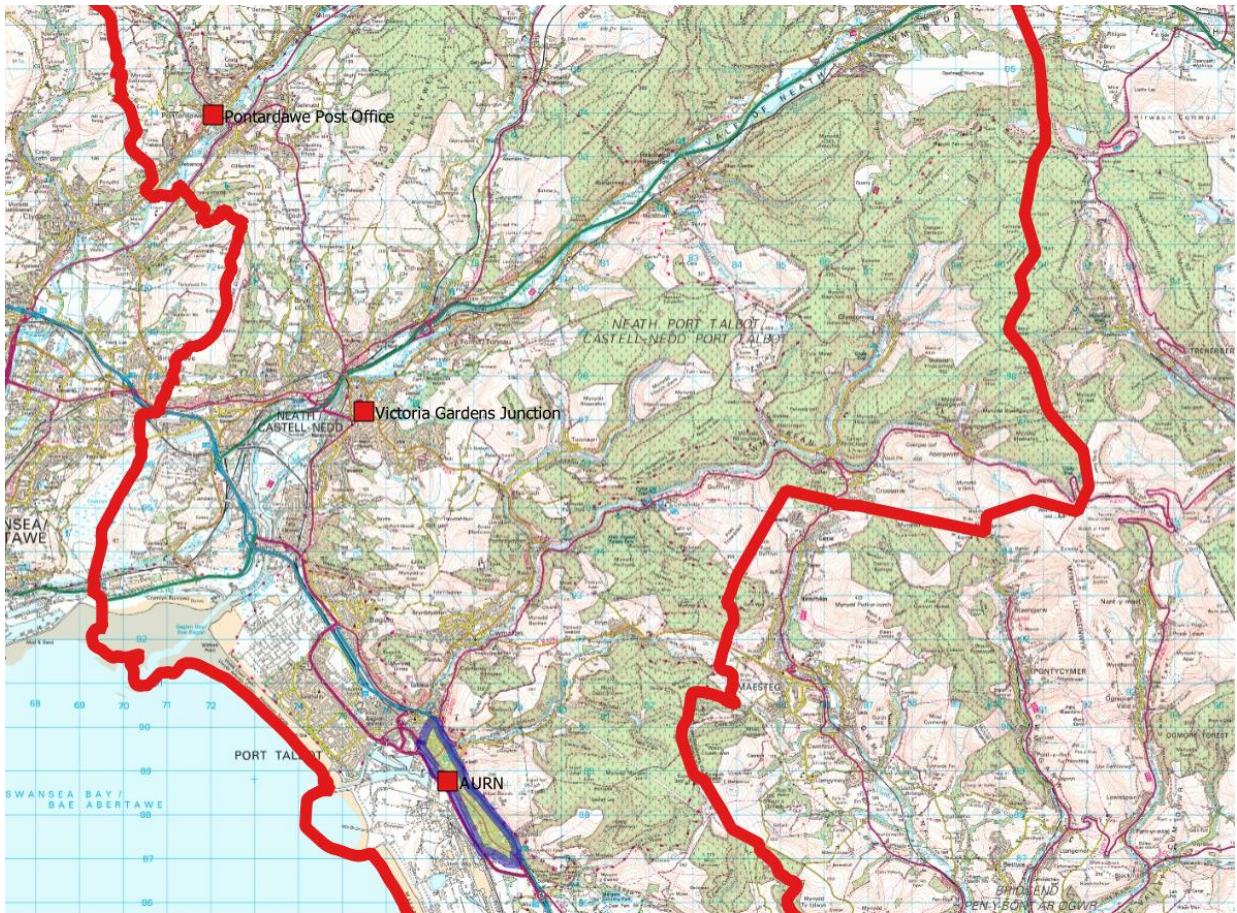




Figure 2.3 NO<sub>2</sub> analyser at Cimla Road/Victoria Gardens in Neath



Figure 2.4 NO<sub>2</sub> analyser at Pontardawe Post Office



Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
PT2	Port Talbot Fire Station	Industrial	277388	188733	2.5	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , CO, O <sub>3</sub> , NO <sub>2</sub>	Y	FDMS, UV fluorescence, IR absorption, UV absorption, chemiluminescence	Y (16)	8	Y
DS1	Dyffryn School	Industrial	278700	187387	1.8	PM <sub>10</sub>	Y	FDMS	Y (88)	75	N
TW1	Twll-yn-y Wal Park	Industrial	278196	187891	1.8	PM <sub>10</sub>	Y	FDMS	Y (14)	2	N
TH1	Theodore Road	Industrial	277328	189385	1.8	PM <sub>10</sub>	Y	FDMS	Y (5)	6	N
TR1	Talbot Road	Roadside	276833	189567	1.8	PM <sub>10</sub>	Y	FDMS	N	2	N
LW1	Port Talbot Little Warren	Industrial	275313	188879	2.5	PM <sub>10</sub>	N	FDMS	N	160	N
DK1	Port Talbot Docks	Industrial	276346	189446	2.5	PM <sub>10</sub>	Y	FDMS	N	2	N
PS2	Prince St.	Industrial	277689	188235	1.8	PM <sub>10</sub> , PM <sub>2.5</sub>	Y	FDMS	Y (40)	47	Y
VG2	Victoria Gardens	Roadside	275471	197183	1.2	NO <sub>2</sub>	N	Chemiluminescence	Y (21)	1	Y
PD1	Pontardawe Post Office	Roadside	272031	203950	1.2	NO <sub>2</sub>	N	Chemiluminescence	Y (3)	2.5	Y

### 2.1.2 Non-Automatic Monitoring Sites

Lead is measured at Milland Road Car Park in Neath, Port Talbot Fire Station, Pontardawe Leisure Centre, Tawe Terrace and Brecon Road in Pontardawe. Pumps sample the ambient air and filters are exposed for a fixed period of time. The filters are despatched to the laboratory together with information about the exposure time, flow rate etc. This information, combined with an analysis of the filters allows a concentration to be calculated for lead over the exposure period for the filters.

Measurements at Port Talbot Fire Station, Tawe Terrace & Brecon Road are carried out as part of the UK Metals Network and are subject to the quality assurance procedures of this network. The Council employs the National Physical Laboratory (NPL) to analyse and report results for filters exposed at Pontardawe Leisure Centre. The sampler is subject to a service contract to ensure it is correctly maintained.

PM<sub>10</sub> is also measured at Port Talbot Fire Station using a Partisol, which is quality assured by Bureau Veritas.

Nitrogen dioxide is also measured at a variety of locations using passive diffusion tubes (Figs. 2.5 – 2.9). The tubes are exposed for one month and are provided and analysed by ESG Didcot. The tubes are prepared using acetone:triethanolamine (50:50) and are subject to intercomparison quality assurance tests as part of the Workplace Analysis Scheme for Proficiency (WASP).

Figure 2.5 –NO<sub>2</sub> diffusion tube Sites

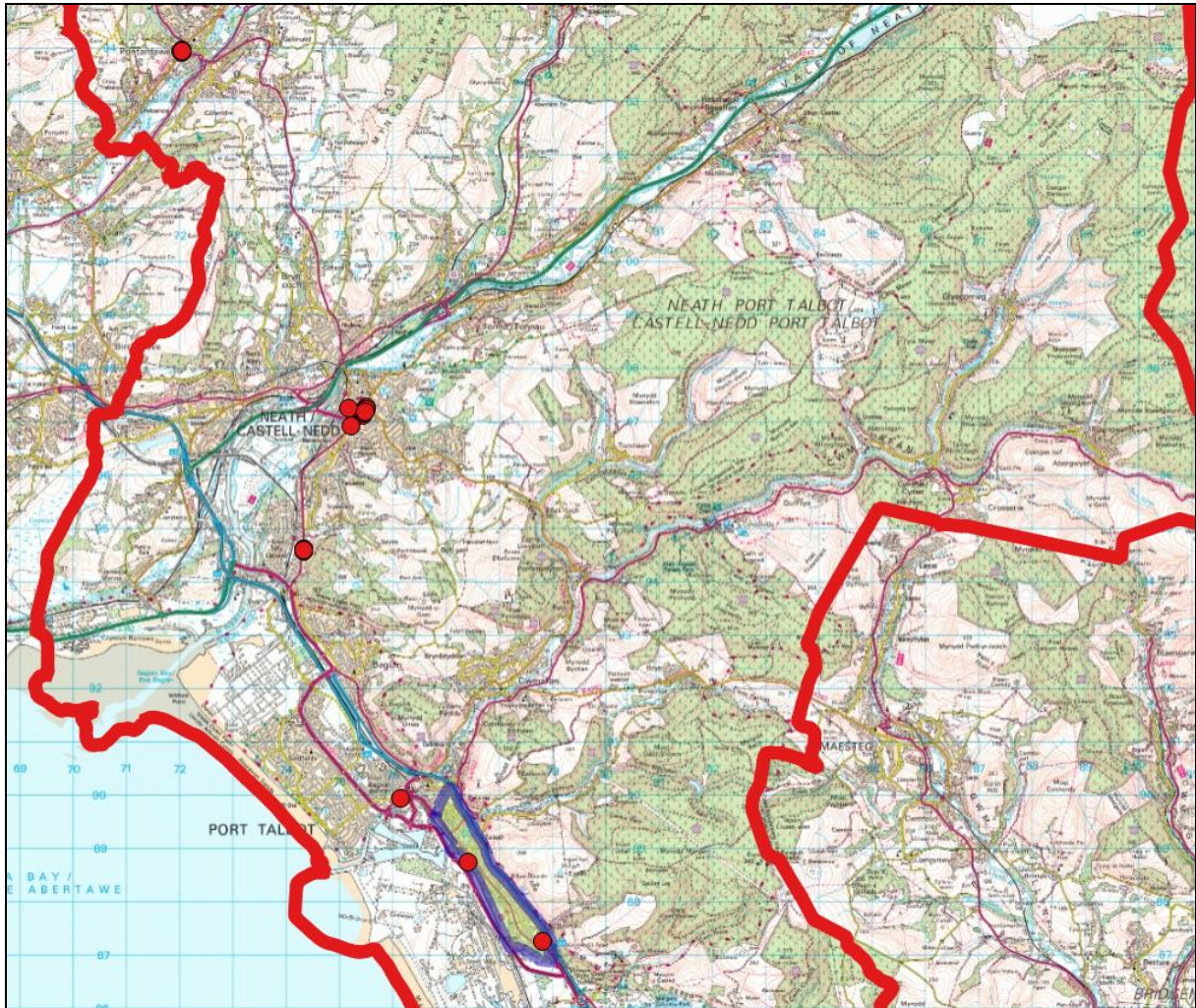
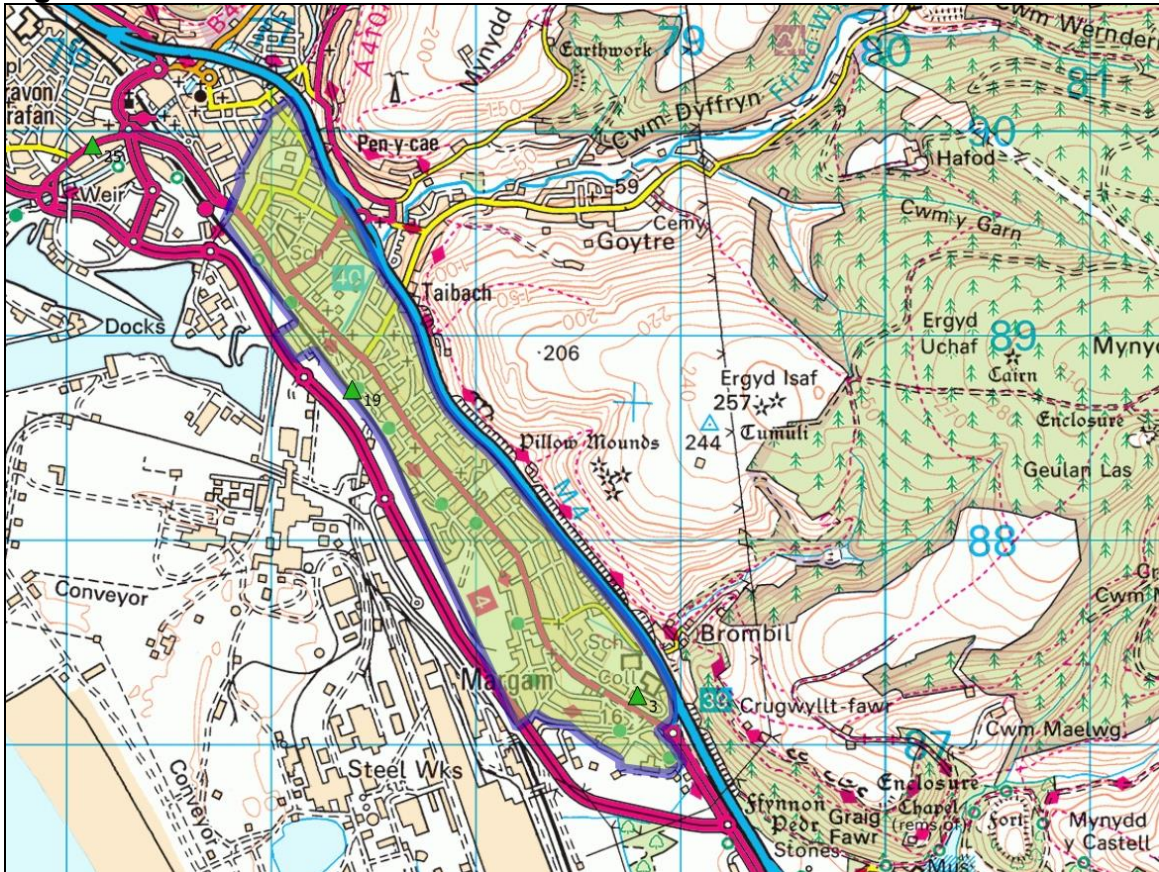


Figure 2.6 - Location of NO<sub>2</sub> diffusion tubes near Port Talbot



The Port Talbot AQMA is shaded green.

Figure 2.7 Location of NO<sub>2</sub> diffusion tubes in Briton Ferry

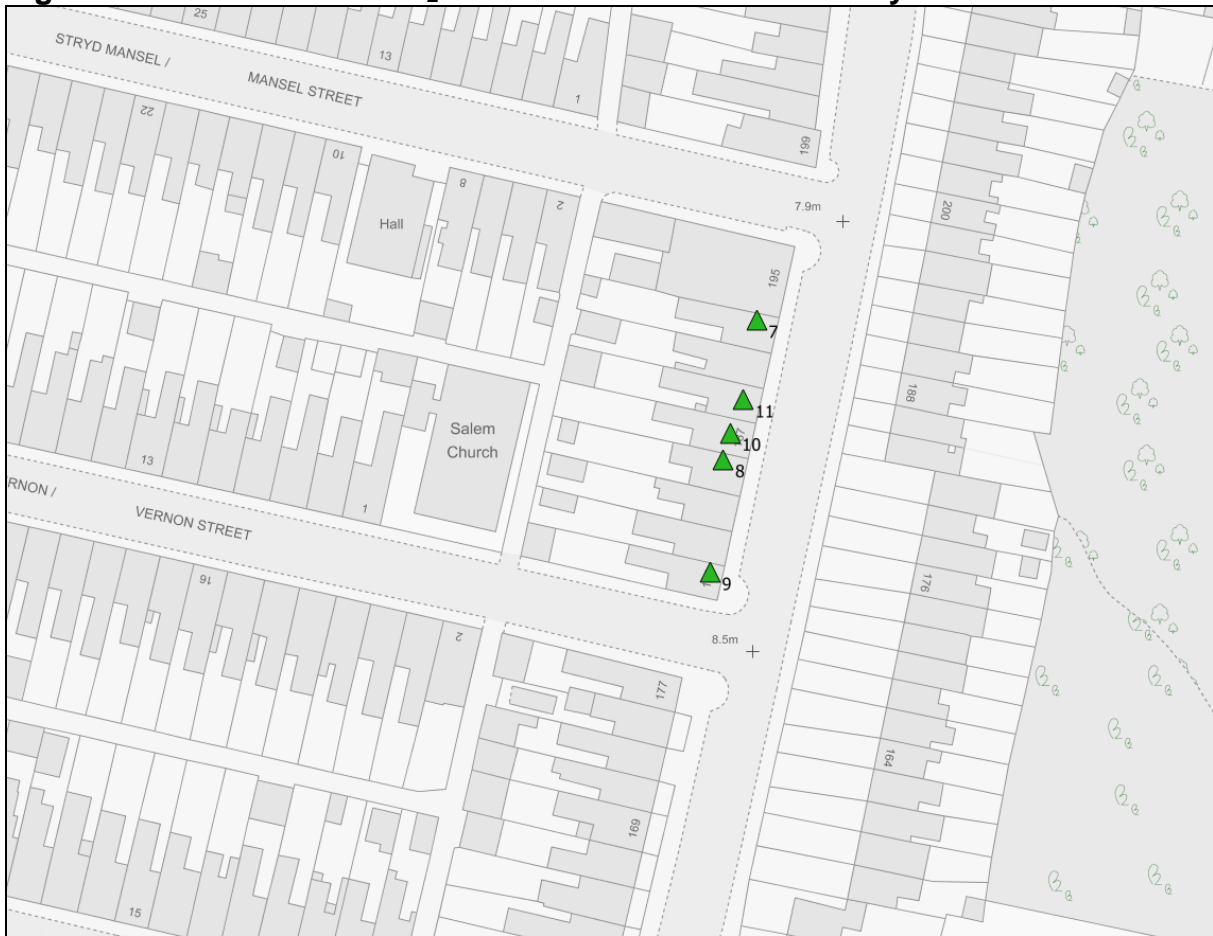


Figure 2.8 -Location of NO<sub>2</sub> diffusion tubes in Neath

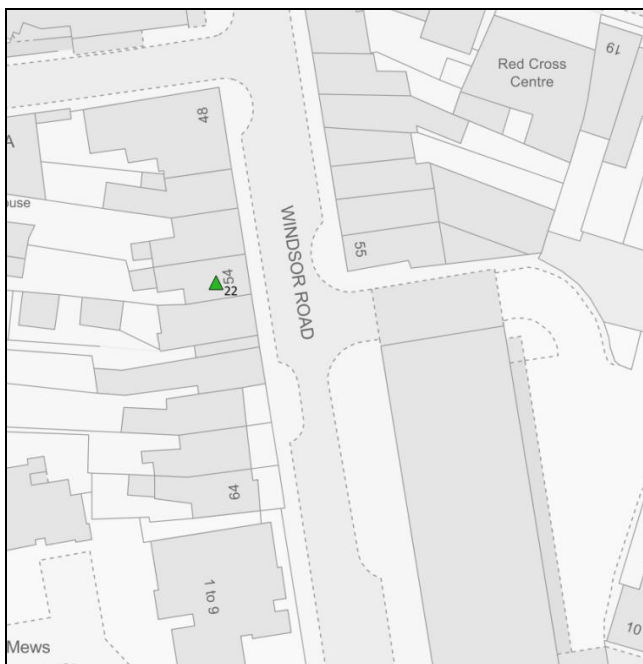


Figure 2.9 - Location of NO<sub>2</sub> diffusion tubes in Pontardawe

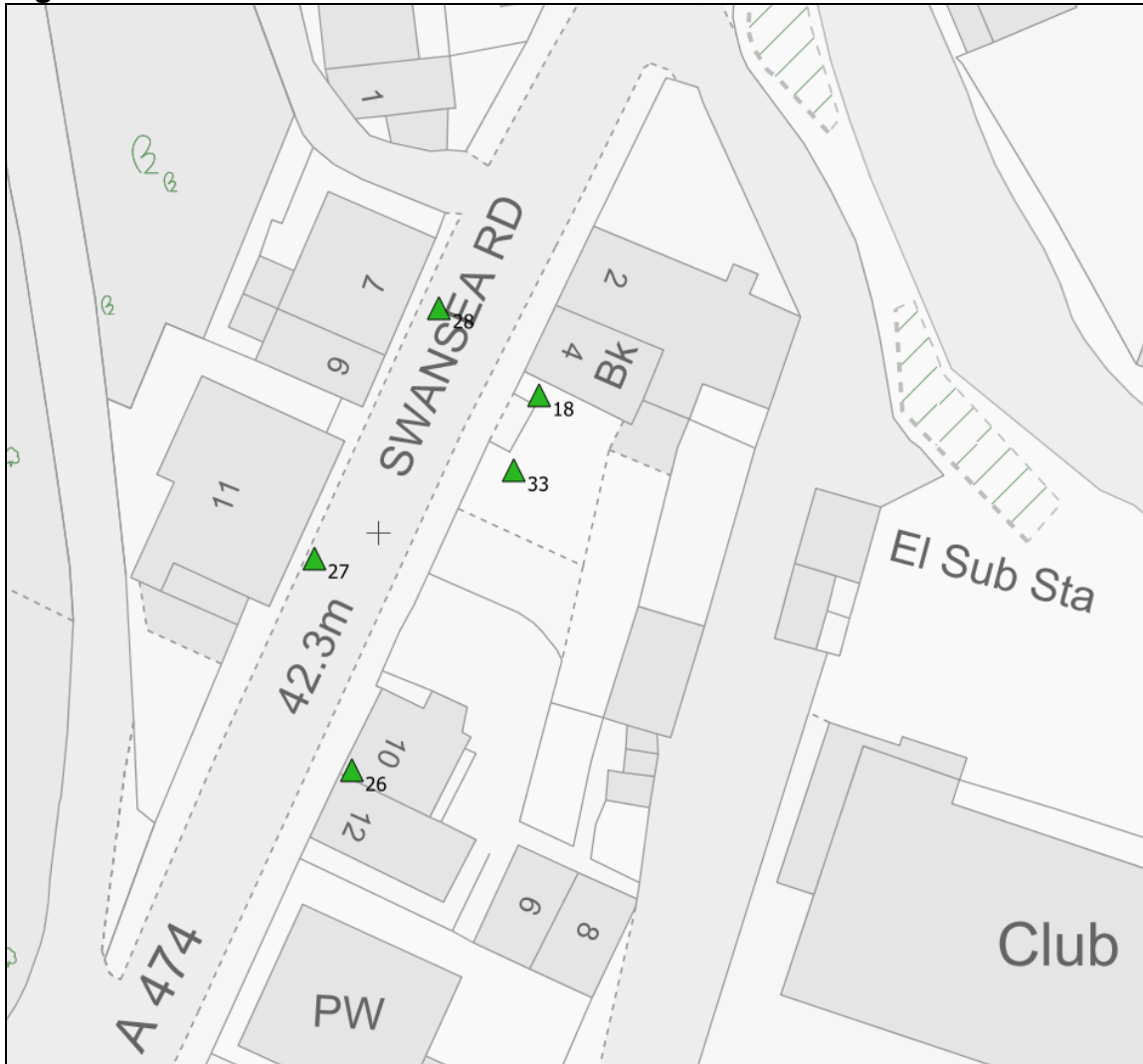




Table 2.2 – Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
3	11 College Green, Margam, Port Talbot	Urban background	278794	187237	1.5	NO <sub>2</sub>	Y	N	Y (2m)	1m	N
4	8 Victoria Gardens, Neath	Roadside	275494	197272	1.5	NO <sub>2</sub>	N	N	Y (2m)	4.5 m	N
5	28 Eastland Road, Neath	Roadside	275420	197161	1.5	NO <sub>2</sub>	N	N	Y (0m)	4 m	N
7	Moby's, Neath Road, Briton Ferry	Roadside	274312	194601	2.0	NO <sub>2</sub>	N	N	Y (2m)	1.5 m	Y

**Neath Port Talbot County Borough Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
8	185 Neath Road, Briton Ferry	Roadside	274307	194580	2.0	NO <sub>2</sub>	N	N	Y (0m)	1.5 m	Y
9	179 Neath Road, Briton Ferry	Roadside	274305	194563	2.0	NO <sub>2</sub>	N	N	Y (0m)	1.5 m	Y
10	187 Neath Road, Briton Ferry	Roadside	274308	194584	2.0	NO <sub>2</sub>	N	N	Y (0m)	1.5 m	Y
11	189 Neath Road, Briton Ferry	Roadside	274310	194589	2.0	NO <sub>2</sub>	N	N	Y (0m)	1.5 m	Y
12	34 Eastland Road, Neath	Roadside	275427	197139	1.5	NO <sub>2</sub>	N	N	Y (0m)	4 m	N

**Neath Port Talbot County Borough Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
13	40 Eastland Road, Neath	Roadside	275415	197110	1.5	NO <sub>2</sub>	N	N	Y (0m)	4 m	N
14	32 Eastland Road, Neath	Roadside	275431	197149	1.5	NO <sub>2</sub>	N	N	Y (0m)	4 m	N
15	30 Eastland Road, Neath	Roadside	275434	197157	1.5	NO <sub>2</sub>	N	N	Y (0m)	4 m	N
16	5 Victoria Gardens, Neath	Roadside	275464	197230	1.5	NO <sub>2</sub>	N	N	Y (0m)	3.5 m	Y
17	1 Greenway Road, Neath	Roadside	275455	197211	2.0	NO <sub>2</sub>	N	N	Y (0m)	1 m	Y

**Neath Port Talbot County Borough Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
18	Pontardawe Post Office	Roadside	272034	203954	2.0	NO <sub>2</sub>	N	N	Y (0m)	1m	Y
19	Port Talbot Fire Station	Industrial	277399	188734	2.5	NO <sub>2</sub>	Y	Y	Y (16m)	8 m	N
20	3 Victoria Gardens, Neath	Roadside	275463	197223	1.5	NO <sub>2</sub>	N	N	Y (0m)	3.5 m	Y
21	50 Greenway Road, Neath	Roadside	275452	197195	2.0	NO <sub>2</sub>	N	N	Y (0m)	1 m	Y
22	54 Windsor Road, Neath	Roadside	275146	197248	2.0	NO <sub>2</sub>	N	N	Y (0m)	1.5 m	Y

**Neath Port Talbot County Borough Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
23	4 Victoria Gardens, Neath	Roadside	275482	197227	1.5	NO <sub>2</sub>	N	N	Y (0m)	3.5 m	Y
24	Stockham's Corner Flats	Roadside	275200	196905	2.0	NO <sub>2</sub>	N	N	Y (0m)	3 m	Y
25	Old Fire Station, Water Street, Port Talbot	Roadside	276131	189926	2.0	NO <sub>2</sub>	N	N	Y (3m)	1 m	Y
26	10 Swansea Road, Pontardawe	Roadside	272019	203924	2.0	NO <sub>2</sub>	N	N	Y (0m)	1 m	Y

**Neath Port Talbot County Borough Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
27	11a Swansea Road, Pontardawe	Roadside	272016	203941	2.0	NO <sub>2</sub>	N	N	Y (0m)	1 m	Y
28	8 Swansea Road, Pontardawe	Roadside	272026	203961	2.0	NO <sub>2</sub>	N	N	Y (0m)	1 m	Y
33	Bus Stop near Pontardawe Post Office	Roadside	272032	203948	1.4	NO <sub>2</sub>	N	Y	Y (3m)	2.5 m	N
34	Lights at Cimla Junction	Roadside	275472	197185	1.4	NO <sub>2</sub>	N	Y	Y (20m)	1.5 m	N

## **2.2 Comparison of Monitoring Results with Air Quality Objectives**

### **2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)**

#### **Automatic Monitoring Data**

Table 2.3 summarises the results from automatic monitors compared to the annual mean objective. No site exceeded the annual air quality objective of 40 µg/m<sup>3</sup>, but Victoria Gardens equalled it (40 µg/m<sup>3</sup>). However, this site is not representative of relevant exposure and it was not possible to locate the monitor at properties where concentrations are highest. Therefore, diffusion tubes were co-located at the three continuous analysers in order to provide a local bias adjustment factor for diffusion tubes in the County Borough.

It was also not possible to place the monitor at the frontage of Pontardawe Post Office due to the shortage of space and health & safety concerns. Diffusion tubes were co-located with the monitor.

**Table 2.3 – Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Annual Mean Concentration (µg/m <sup>3</sup> )				
					2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014* <sup>c</sup>	2015 <sup>c</sup>
PT2	Industrial	Y	94	94	18	18	17	17	17
VG2	Roadside	N	99	99	-	<b>51</b>	<b>42</b>	<b>42</b>	40
PD1	Roadside	N	99	99	-	28	23	22	21

**In bold**, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

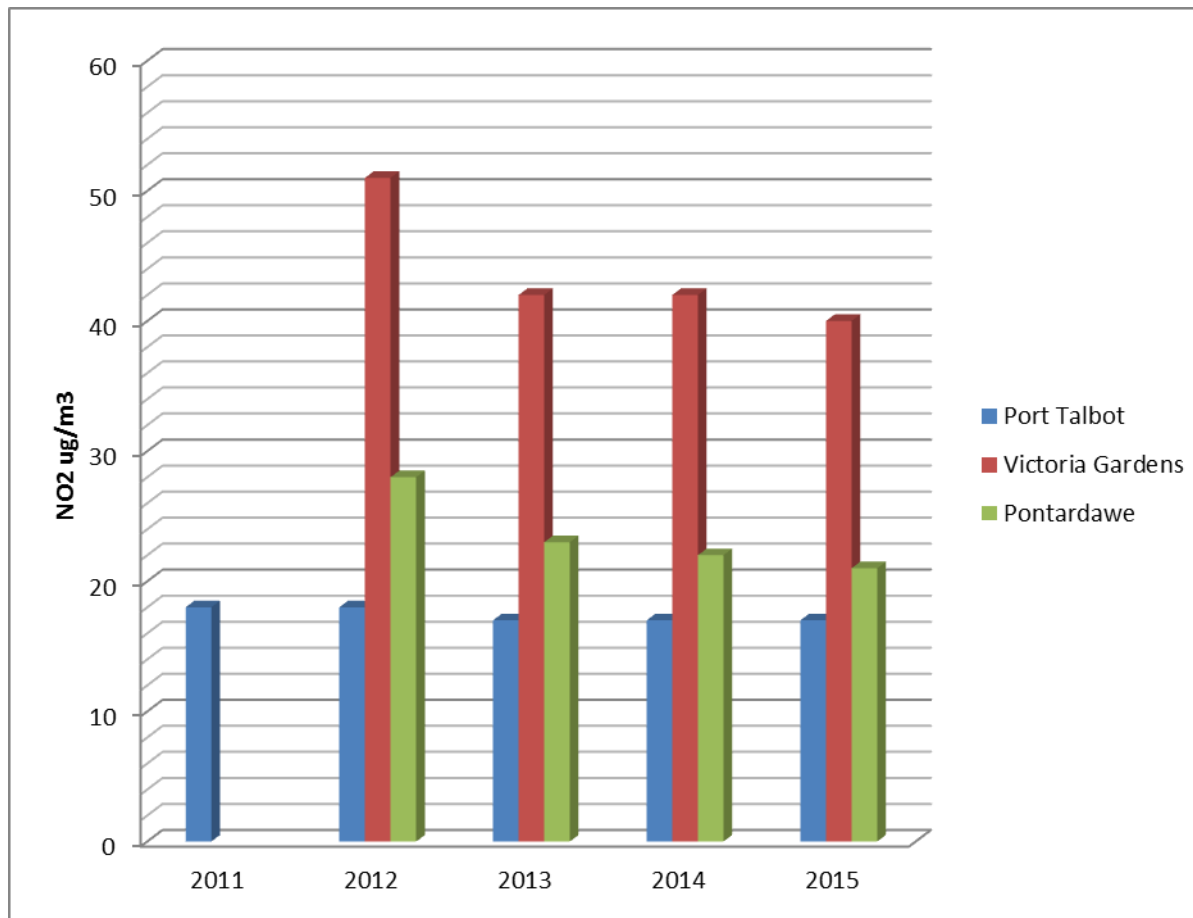
<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional



Figure 2.10 – Trends in Annual Mean NO<sub>2</sub> Concentrations Measured at Automatic Monitoring Sites



Nitrogen dioxide levels have not changed significantly at Margam Fire Station over the last five years. There has never been a problem with compliance with the air quality objectives at this location. NO<sub>2</sub> levels at the two newer sites have decreased since the first complete year of monitoring in 2013.

Table 2.4 shows that none of the continuous sites breached the 1 hour air quality objective.

**Table 2.4 – Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Number of Hourly Means > 200µg/m <sup>3</sup>				
					2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014* <sup>c</sup>	2015 <sup>c</sup>
PT2	Industrial	Y	94	94	0	0	0	0	0
VG2	Roadside	N	99	99	-	0 (142)	0	0	0
PD1	Roadside	N	99	99	-	0 (55)	0	0	0

**In bold**, exceedance of the NO<sub>2</sub> hourly mean AQS objective (200µg/m<sup>3</sup> – not to be exceeded more than 18 times per year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> If the data capture for full calendar year is less than 90%, include the 99.8<sup>th</sup> percentile of hourly means in brackets

\* Number of exceedances for previous years is optional

**Diffusion Tube Monitoring Data**

Results are shown in table 2.5 below. A local bias adjustment factor of 0.80 was derived from diffusion tubes co-located with the three continuous analysers at Port Talbot Fire Station, Victoria Gardens and Pontardawe Post Office.

Table 2.5 – Results of NO<sub>2</sub> Diffusion Tubes 2015

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2015 (Number of Months or %) <sup>a</sup>	2015 Annual Mean Concentration (µg/m <sup>3</sup> ) - Bias Adjustment factor = 0.80 <sup>b</sup>
3	11 College Green, Margam, Port Talbot	Urban background	Y	N	12	14.5
4	8 Victoria Gardens, Neath	Roadside	N	N	12	25.7
5	28 Eastland Road, Neath	Roadside	N	N	12	29.6
7	Moby's, Neath Road, Briton Ferry	Roadside	N	Triplicate	12	27.9
8	185 Neath Road, Briton Ferry	Roadside	N	N	12	28.1

Neath Port Talbot County Borough Council

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2015 (Number of Months or %) <sup>a</sup>	2015 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.80 <sup>b</sup>
9	179 Neath Road, Briton Ferry	Roadside	N	N	12	28.6
10	187 Neath Road, Briton Ferry	Roadside	N	N	12	28.0
11	189 Neath Road, Briton Ferry	Roadside	N	N	12	28.1
12	34 Eastland Road, Neath	Roadside	N	N	12	28.9
13	40 Eastland Road, Neath	Roadside	N	N	12	26.2
14	32 Eastland Road, Neath	Roadside	N	N	12	30.1

Neath Port Talbot County Borough Council

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2015 (Number of Months or %) <sup>a</sup>	2015 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.80 <sup>b</sup>
15	30 Eastland Road, Neath	Roadside	N	N	12	29.8
16	5 Victoria Gardens, Neath	Roadside	N	N	12	32.8
17	1 Greenway Road, Neath	Roadside	N	N	12	33.9
18	Pontardawe Post Office	Roadside	N	Triplicate	12	36.8
19	Port Talbot Fire Station	Industrial	Y	Triplicate and Co-located	12	16.6
20	3 Victoria Gardens, Neath	Roadside	N	Triplicate	12	34.1

Neath Port Talbot County Borough Council

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2015 (Number of Months or %) <sup>a</sup>	2015 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.80 <sup>b</sup>
21	50 Greenway Road, Neath	Roadside	N	N	12	39.5
22	54 Windsor Road, Neath	Roadside	N	N	12	25.1
23	4 Victoria Gardens, Neath	Roadside	N	N	12	27.4
24	Stockham's Corner Flats	Roadside	N	triplicate	12	29.2
25	Old Fire Station, Water Street, Port Talbot	Roadside	N	N	12	24.2

Neath Port Talbot County Borough Council

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2015 (Number of Months or %) <sup>a</sup>	2015 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.80 <sup>b</sup>
26	10 Swansea Road, Pontardawe	Roadside	N	N	12	32.7
27	11a Swansea Road, Pontardawe	Roadside	N	N	12	39.1
28	8 Swansea Road, Pontardawe	Roadside	N	N	12	27.6
33	Bus Stop near Pontardawe Post Office	Roadside	N	Triplicate and Co-located	12	18.1
34	Lights at Cimla Junction	Roadside	N	Triplicate and Co-located	12	<b>46.6</b>

**In bold**, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$



Underlined, annual mean  $> 60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the  $\text{NO}_2$  hourly mean AQS objective

<sup>a</sup> Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

<sup>b</sup> If an exceedance is measured at a monitoring site not representative of public exposure,  $\text{NO}_2$  concentration at the nearest relevant exposure should be estimated based on the “[NO<sub>2</sub> fall-off with distance](http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html)” calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained in paragraphs 7.77 to 7.79 of LAQM.TG16.

Table 2.6 – Results of NO<sub>2</sub> Diffusion Tubes (2011 to 2015)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>				
			2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.75)	2014 (Bias Adjustment Factor = 0.78)	2015 (Bias Adjustment Factor = 0.80)
3	Urban background	Y	17.0	16.9	15.7	14.9	14.5
4	Roadside	N	32	28.0	28.9	27.6	25.7
5	Roadside	N	34	31.9	30.0	28.5	29.6
7	Roadside	N	36	30.9	29.1	29.9	27.9
8	Roadside	N	34	30.2	30.1	29.1	28.1
9	Roadside	N	34	30.5	29.4	28.7	28.6
10	Roadside	N	34	31.3	29.1	29.0	28.0
11	Roadside	N	33	31.3	28.7	28.4	28.1
12	Roadside	N	35	31.8	31.0	29.2	28.9
13	Roadside	N	30	29.3	29.7	25.7	26.2
14	Roadside	N	34	32.2	31.3	30.0	30.1
15	Roadside	N	36	32.7	30.6	29.8	29.8
16	Roadside	N	<b>41</b>	35.2	33.7	34.1	32.8
17	Roadside	N	35	31.0	32.9	35.2	33.9
18	Roadside	N	<b>46</b>	37.8	37.3	36.6	36.8
19	Industrial	Y	20.3	18.3	18.6	16.9	16.6
20	Roadside	N	<b>42</b>	36.0	34.4	34.0	34.1

Neath Port Talbot County Borough Council

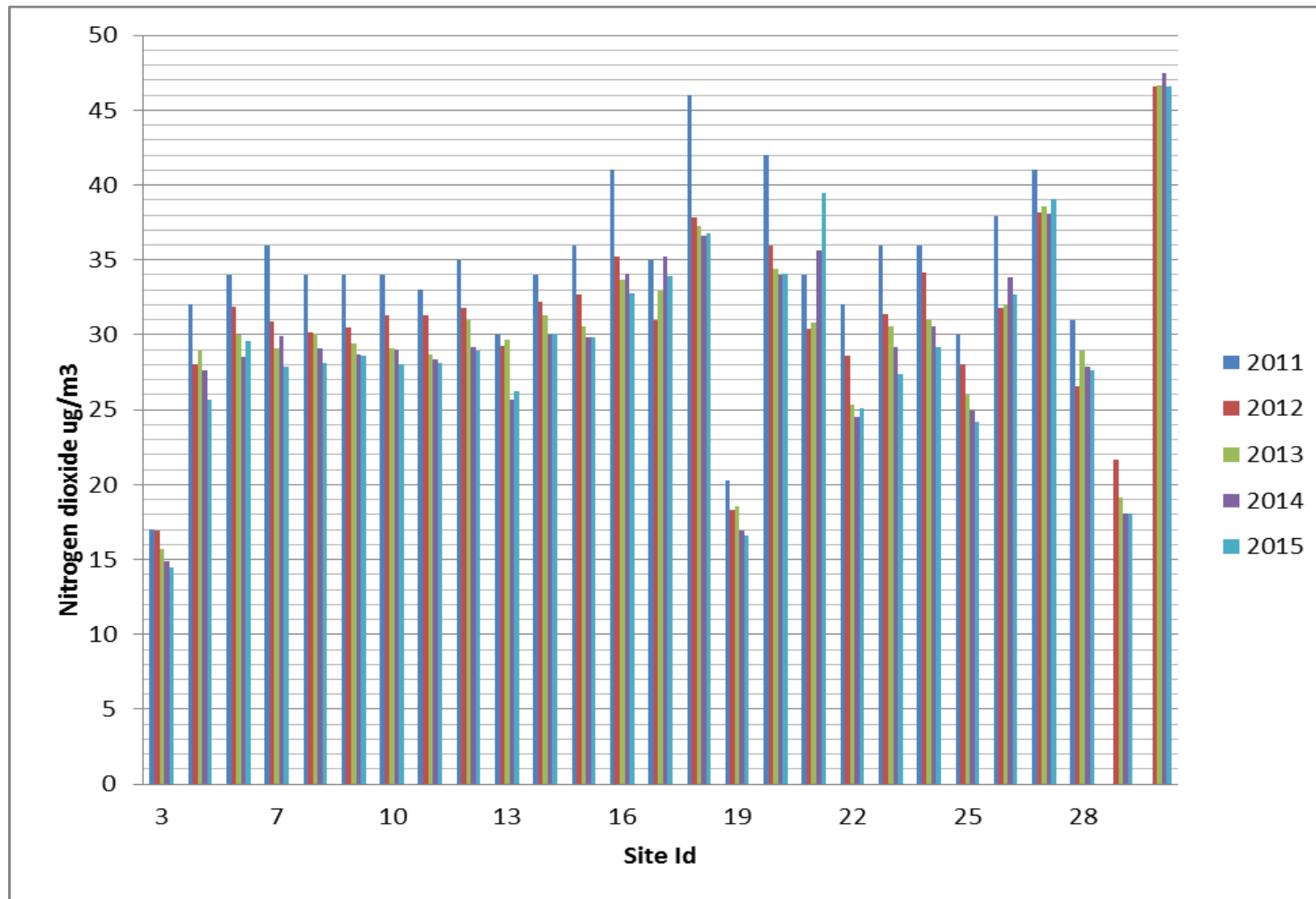
Site ID	Site Type	Within AQMA?	Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Adjusted for Bias <sup>a</sup>				
			2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.75)	2014 (Bias Adjustment Factor = 0.78)	2015 (Bias Adjustment Factor = 0.80)
21	Roadside	N	34	30.4	30.8	35.6	39.5
22	Roadside	N	32	28.6	25.3	24.5	25.1
23	Roadside	N	36	31.4	30.6	29.2	27.4
24	Roadside	N	36	34.2	31.0	30.6	29.2
25	Roadside	N	30	28.0	26.0	24.9	24.2
26	Roadside	N	37.9	31.8	32.0	33.8	32.7
27	Roadside	N	<b>41</b>	38.2	38.6	38.1	39.1
28	Roadside	N	31	26.6	28.9	27.9	27.6
33	Roadside	N	-	21.7	19.1	18.1	18.1
34	Roadside	N	-	<b>46.6</b>	<b>46.7</b>	<b>47.5</b>	<b>46.6</b>

**In bold**, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

Figure 2.11 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



## Neath Port Talbot County Borough Council

The sites that have failed to meet the annual averaged air quality objective during the last five years have been some of those located at Victoria Gardens or Pontardawe Post Office.

Monitoring at 1 Victoria Gardens had to cease on account of health & safety concerns since the pavement was very low and narrow and it was considered to be dangerous to use the ladder to exchange the tubes. The property next door at 3, Victoria Gardens continues to be measured and is used to estimate NO<sub>2</sub> levels at No.1 Victoria Gardens. Therefore it is necessary to estimate the pollution level at this property using the “NO<sub>2</sub> with distance from roads calculator” spreadsheet.


No. 3 is set back approximately 3.5 metres from the kerb, whereas the frontage at No. 1 faces directly onto the pavement.

The background maps spreadsheet for NO<sub>2</sub> for Neath Port Talbot for the year of 2015 was downloaded from <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2011> . The nearest location to the junction at Victoria Gardens and Cimla Road was defined by the coordinates 275500, 197500. The background NO<sub>2</sub> concentration at this location is 14.6 µg/m<sup>3</sup>.

The data entered into the spreadsheet is shown below:

Figure 2.12 Screenshot of NO<sub>2</sub> with distance calculator spreadsheet

This calculator allows you to predict the annual mean NO<sub>2</sub> concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the monitor. The next sheet shows your results on a graph.



**Enter data into the yellow cells**

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)? (Note 1)	3.5	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)? (Note 1)	1	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )? (Note 2)	14.6	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )? (Note 2)	34.1	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor (Note 3)	40.7	µg/m <sup>3</sup>

Note 1: In some cases the term "kerb" may be taken to be the edge of the trafficked road - see the FAQ at <http://laqm2.defra.gov.uk/FAQs/Monitoring/Location/index.htm> for further details. Distances should be measured horizontally from the kerb and assumes that the monitor and receptor have similar elevations. Each distance should be greater than 0.1m and less than 50m (In practice, using a value of 0.1m when the monitor is closer to the kerb than this is likely to be reasonable). The receptor is the location for which you wish to make your prediction. The monitor can either be closer to the kerb than the receptor, or further from the kerb than the receptor. The closer the monitor and the receptor are to each other, the more reliable the prediction will be. When your receptor is further from the kerb than your monitor, it is recommended that the receptor and monitor should be within 20m of each other. When your receptor is closer to the kerb than your monitor, it is recommended that the receptor and monitor should be within 10m of each other.

Note 2: The measurement and the background must be for the same year. The background concentration could come from the national maps published at [www.airquality.co.uk](http://www.airquality.co.uk), or alternatively from a nearby monitor in a background location.

Note 3: The calculator follows the procedure set out in Box 2.3 of LAQM TG(09). The results will have a greater uncertainty than the measured data. More confidence can be placed in results where the distance between the monitor and the receptor is small than where it is large.

Issue 4: 25/01/11. Created by Dr Ben Marner; Approved by Prof Duncan Laxen. Contact: benmarner@aqconsultants.co.uk

This shows that the annual averaged air quality objective at 1 Victoria Gardens was not in compliance with the air quality objective i.e. 40.7 µg/m<sup>3</sup>.

2.2.2 Particulate Matter (PM<sub>10</sub>)

Table 2.7 – Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )				
						2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014* <sup>c</sup>	2015 <sup>c</sup>
PT2	Industrial	Y	92	92	Y	29	23	19	24	27
DS1	Industrial	Y	97	97	Y	17	16	18	21	20
TW1	Industrial	Y	98	98	Y	30	23	20	27	26
TH1	Industrial	Y	97	97	Y	23	19	17	22	23
TR1	Roadside	Y	90	90	Y	25	22	21	22	22
LW1	Industrial	N	95	95	Y	-	19	19	25	24
DK1	Industrial	N	96	96	Y	23	18	17	20	20
PS2 <sup>d</sup>	Industrial	Y	n/a	n/a	Y	33	22	31	26	n/a

**In bold**, exceedance of the PM<sub>10</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

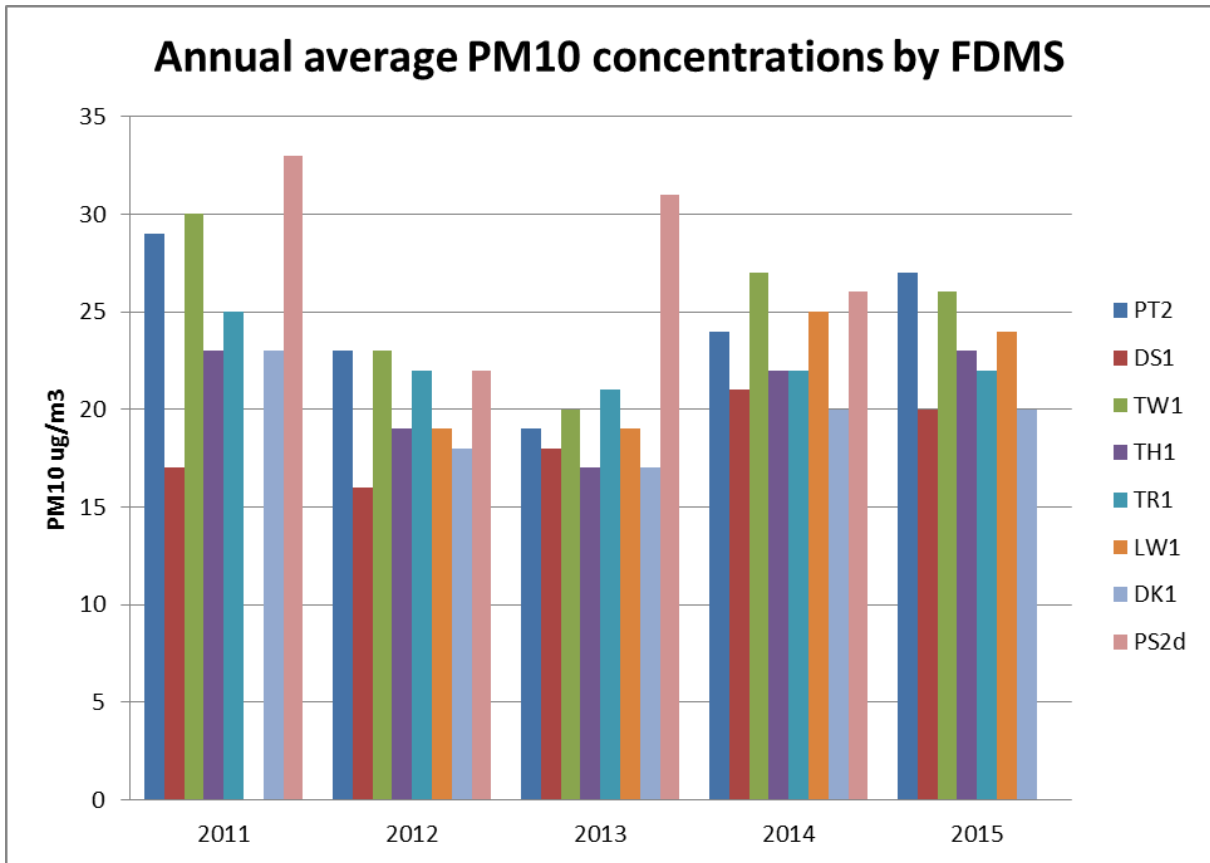
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional

Figure 2.13 – Trends in Annual Mean PM<sub>10</sub> Concentrations



The Prince Street site experienced the highest concentrations in 2 years out of 5. This is no worse than Port Talbot Fire Station or Twll yn y Wal sites. Although the Twll yn y Wal site is clearly impacted significantly in terms of the annual average, the impact on the short term average is significantly less as shown in the next figure.



**Table 2.8 – Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m <sup>3</sup>				
						2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014* <sup>c</sup>	2015 <sup>c</sup>
PT2	Industrial	Y	92	92	Y	29	11	34	16	28
DS1	Industrial	Y	97	97	Y	2 (28)	3	2	5	5
TW1	Industrial	Y	98	98	Y	21	8	9	6	10
TH1	Industrial	Y	97	97	Y	12	3	4	3	4
TR1	Roadside	Y	90	90	Y	14	8	15	6	4
LW1	Industrial	N	95	95	Y	-	2	21	22	15
DK1	Industrial	N	96	96	Y	11	5	10	4	6
PS2 <sup>d</sup>	Industrial	Y	n/a	n/a	Y	<b>50</b>	11	<b>46</b>	17	n/a

**In bold**, exceedance of the PM<sub>10</sub> daily mean AQS objective (50µg/m<sup>3</sup> – not to be exceeded more than 35 times per year)

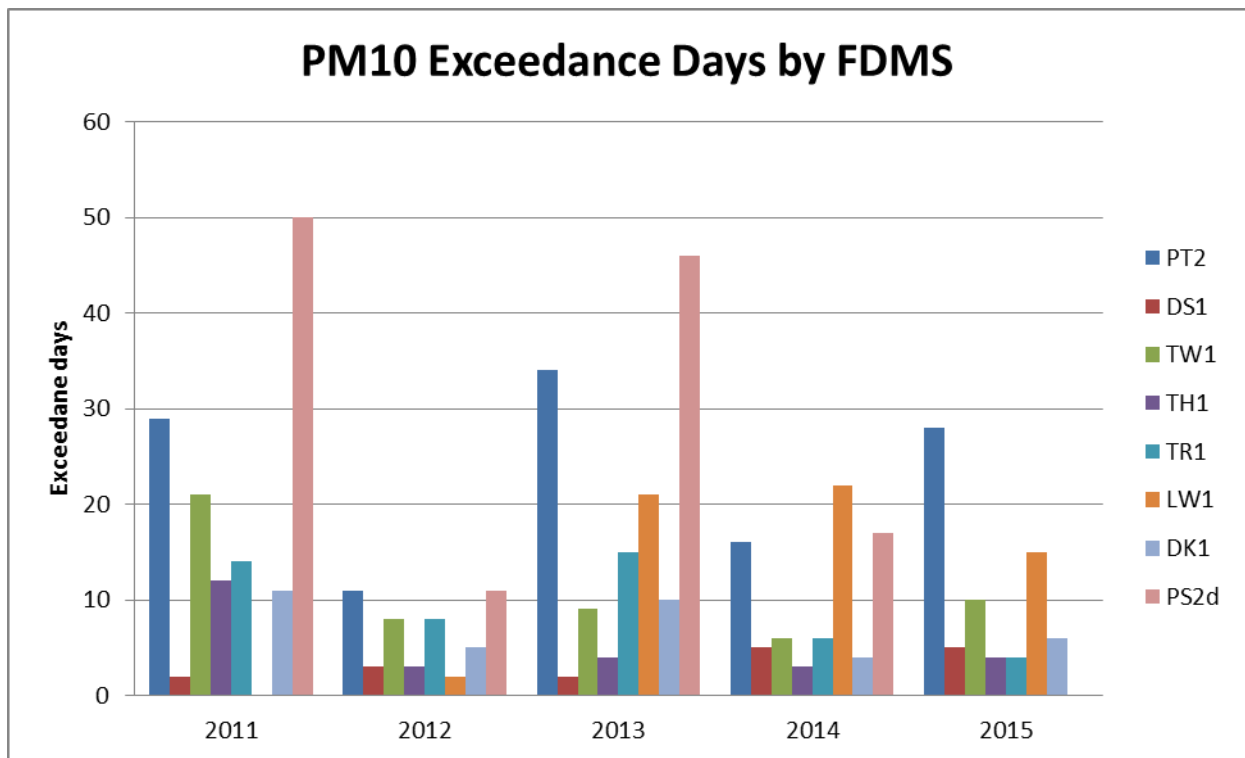
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> if data capture for full calendar year is less than 90%, include the 90.4<sup>th</sup> percentile of 24-hour means in brackets

\* Number of exceedances for previous years is optional

Figure 2.14 – Trends in PM<sub>10</sub> exceedance days



The graph shows that Prince Street experiences the highest number of exceedance days in 2 years out of 4 and is roughly the same as the Fire Station on the other two years. No such comparison was possible in 2015 due to unacceptably low data capture rates for Prince Street.

**Table 2.9 - Results of Non-Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )
						2015 <sup>c</sup>
PT2P <sup>d</sup>	Industrial	Y	99	99	Y	<b>38</b>

In bold, exceedance of the PM<sub>10</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

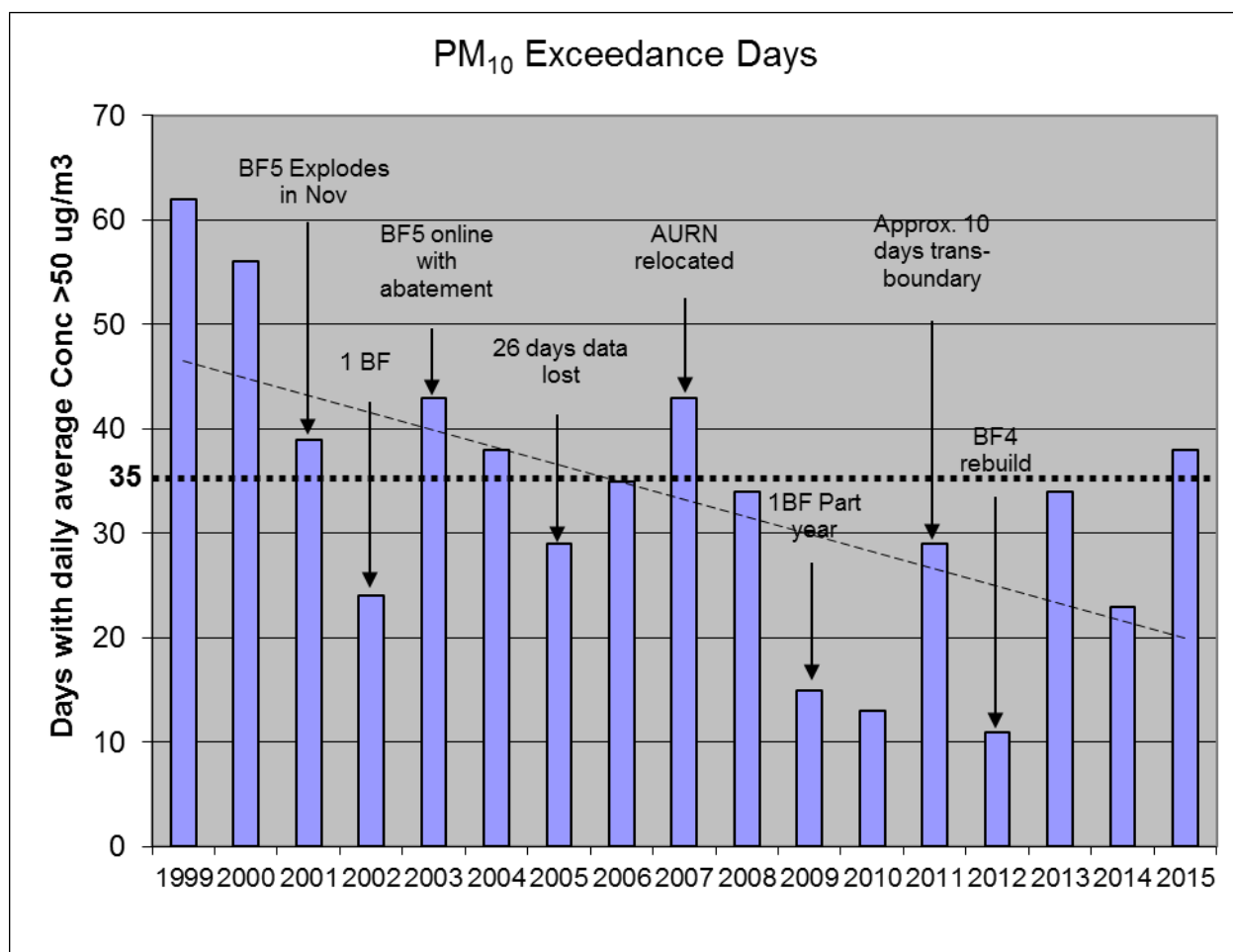
<sup>c</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional

<sup>d</sup> Measurements carried out with a Partisol.

All sites have always easily complied with the annual mean air quality objective.

**Figure 2.15 Trends in PM<sub>10</sub> exceedances of the daily averaged Air Quality Objective at Port Talbot AURN**



There has been a trend towards decreasing numbers of PM<sub>10</sub> exceedances since 1999. Blast furnace No. 5 exploded in November 2001, so there were two months during that year when only one blast furnace was operating. One blast furnace was operational during the whole of 2002. There was an increase in exceedances during 2003 with the re-commencement of two blast furnace operation.

In 2006 26 days of data were lost due to faulty monitoring equipment. The AURN monitoring station was relocated from Groeswen Hospital to Port Talbot Fire Station in 2007, which was also the last year in which the Air Quality Objective was exceeded at an AURN site. There was 1 blast furnace operation for part of the year during 2009.

2010 was a very good year for PM<sub>10</sub> compliance and it was also a year in which there was only one trans-boundary PM<sub>10</sub> exceedance. By contrast, there were approximately 10 trans-boundary PM<sub>10</sub> exceedance days during 2011.

Another good year in 2012 was followed by a relatively poor one in 2013. Whilst the FDMS at the Fire Station recorded only 17 PM<sub>10</sub> exceedance days, the co-located Partisol recorded some 34 over the same period. Both data sets were considered to be correct so the higher of the two was utilised as the official figure.

## Neath Port Talbot County Borough Council

The situation was much improved in 2014 where there were 16 exceedance days at the Fire Station using the FDMS equipment. But, the PM<sub>10</sub> Partisol at Port Talbot Fire Station recorded 23 exceedances during the same period. As the data from both pieces of equipment are considered to be valid, the Council has chosen to accept the higher of the two results.

2015 was a poor year for PM<sub>10</sub> with 28 exceedance days at the Fire Station with the FDMS equipment. Although the data capture was 92%, several additional exceedance days are likely to have arisen on days when the equipment was not functioning correctly. This is evidenced by the results from the co-located PM<sub>10</sub> Partisol, which recorded a total of 38 exceedance days during that year. Consequently this figure was adopted as the official figure for exceedances for 2015. However, the government should also take into account the effect of natural sources or particulates e.g. sea salt. Consequently, it is possible that the short-term air quality objective for particulates may be achieved once this is taken into account. These calculations had not been completed by Welsh government at the time of writing.

### 2.2.3 Sulphur Dioxide (SO<sub>2</sub>)

There were two exceedances of the 15 minute average of 266 µg/m<sup>3</sup> (up to 35 are allowed annually) during 2015 as measured at Port Talbot Fire Station, where the annual data capture rate was 97%. Neither were there any exceedances of the 350 µg/m<sup>3</sup> (maximum 155 µg/m<sup>3</sup>) 1-hour mean or the 125 µg/m<sup>3</sup> daily mean (maximum 44 µg/m<sup>3</sup>). The monitoring station site is representative of relevant public exposure as previously described.

Measurements are carried out using a Thermo 43i UV Fluorescent analyser under the QA/QC arrangements of the AURN.

**Table 2.10 – Results of Automatic Monitoring for SO<sub>2</sub>: Comparison with Objectives**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2015 % <sup>b</sup>	Number of: <sup>c</sup>		
					15-minute Means > 266µg/m <sup>3</sup>	1-hour Means > 350µg/m <sup>3</sup>	24-hour Means > 125µg/m <sup>3</sup>
PT2	Urban industrial	Y	97	97	2	0	0

**In bold**, exceedance of the relevant AQS objective (15-min mean = 35 allowed/year; 1-hour mean = 24 allowed/year; 24-hour mean = 3 allowed/year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> if data capture for full calendar year is less than 90%, include the relevant percentile in bracket (in µg/m<sup>3</sup>): 15-min mean = 99.9<sup>th</sup> ; 1-hour mean = 99.7<sup>th</sup> ; 24-hour mean = 99.2<sup>th</sup> percentile

## 2.2.4 Benzene

Benzene is no longer monitored. It was previously continuously monitored at Baglan Primary School, using a Perkin Elmer Ozone Precursor system. Monitoring was discontinued in December 2005 as the concentration of pollutants of concern had reduced to background levels. The same applies in respect of 1,3-butadiene, which was monitored using the same equipment. There are no new significant local sources of these pollutants which merit more measurements.

## 2.3 Other Pollutants Monitored

### 2.3.1.1 Lead

Lead is monitored at Pontardawe Leisure Centre as part of a study of 13 metals that has continued since 1972. A Thermo Partisol<sup>®</sup> 2025 gravimetric sampling system is used to collect daily samples using Pall Gelman GN4-Metricel filters. These are exposed on a weekly basis and subsequently analysed using inductively coupled mass spectrometry (ICP-MS). The results for 2015 show that the annual average concentration of lead was 6.3 ng/m<sup>3</sup>. This is well within the Air Quality Objective of 0.25 µg/m<sup>3</sup> (250 ng/m<sup>3</sup>) to be achieved by 31<sup>st</sup> December 2008. The analysis and reporting is currently contracted the National Physical Laboratory.

There are a further three metals national network monitoring stations at Port Talbot Fire Station, Brecon Road and Tawe Terrace in Pontardawe. The concentrations of lead at these sites were 9.9, 6.4 and 6.0 ng/m<sup>3</sup> respectively, all of which easily comply with the Air Quality Objective.

### 2.3.1.2 Carbon monoxide

There were no exceedances of the 8-hour average of 10 mg/m<sup>3</sup> (maximum 2.9 mg/m<sup>3</sup>) during 2015. The monitoring station site is representative of relevant public exposure as previously described.

Measurements are carried out using a Thermo 48i analyser under the QA/QC arrangements of the Automatic Urban and Rural Network (AURN).

Table 2.11 - Results of Automatic Monitoring of carbon monoxide

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period % <sup>a</sup>	Valid Data Capture 2014 % <sup>b</sup>	Number of Exceedances (percentile in bracket µg/m <sup>3</sup> ) <sup>c</sup>
					8 hour running mean > 10 mg/m <sup>3</sup>
PT2	Urban industrial	Y	98.8	98.8	0

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

<sup>c</sup> if data capture is less than 90%, include the relevant percentile in brackets

### 2.3.1.3 PM<sub>2.5</sub>

PM<sub>2.5</sub> describes the fraction of airborne particulate matter that is less than 2.5 microns in size.

The EU Clean Air for Europe (I) programme has introduced a framework for managing PM<sub>2.5</sub>. A target of 20 µg/m<sup>3</sup> and a limit of 25 µg/m<sup>3</sup> are to be met by 2015. Exposure reduction is to be used to bring about a 20% reduction in background PM<sub>2.5</sub> levels by 2020 as based upon baseline (2010) values.

Data is drawn from the AURN monitoring station at Port Talbot Fire Station and Prince Street (since 18<sup>th</sup> March 2014).

The data capture at the Fire Station site was 92%, but problems with the instrument at Prince Street reduced data capture to 72%.

Consequently, the annual average concentration at Port Talbot Fire station (10 mg/m<sup>3</sup>) can be reported but the corresponding figure at Prince Street cannot.

The annual average PM<sub>2.5</sub> concentration at Port Talbot was well below both the target and limit values to be achieved by 2015.

### 2.3.1.4 Ozone

Ozone is a highly reactive chemical which, when present in the lower atmosphere at high concentrations, can irritate the eyes and air passages, causing breathing difficulties. Ozone is a so-called secondary pollutant since it is produced indirectly by the reaction between hydrocarbons, NO<sub>2</sub> and sunlight. Ozone tends to be lower in urban areas because high levels of NO are produced by vehicles and this helps to break down ozone to oxygen and NO<sub>2</sub>. The highest ozone therefore tends to occur in rural areas and during the summer months when the sun shines the longest. The ozone forming reactions are complex and have a time lag associated with them which can mean that ozone levels are greatest downwind of the location where the pollution is produced. It is recognised that low level ozone formation is an international problem and that exceedances of the National Air Quality Standard would still occur, even if all sources of hydrocarbons were eliminated in this country.

No statutory Air Quality Objective level for Ozone has been set, owing to the potential for trans-boundary sources. However, there is a recommended Air Quality objective for ozone of 100 µg/m<sup>3</sup>, measured as a rolling 8 hour average. This was breached on a total of 40 occasions on a total of 6 days at the Fire Station.

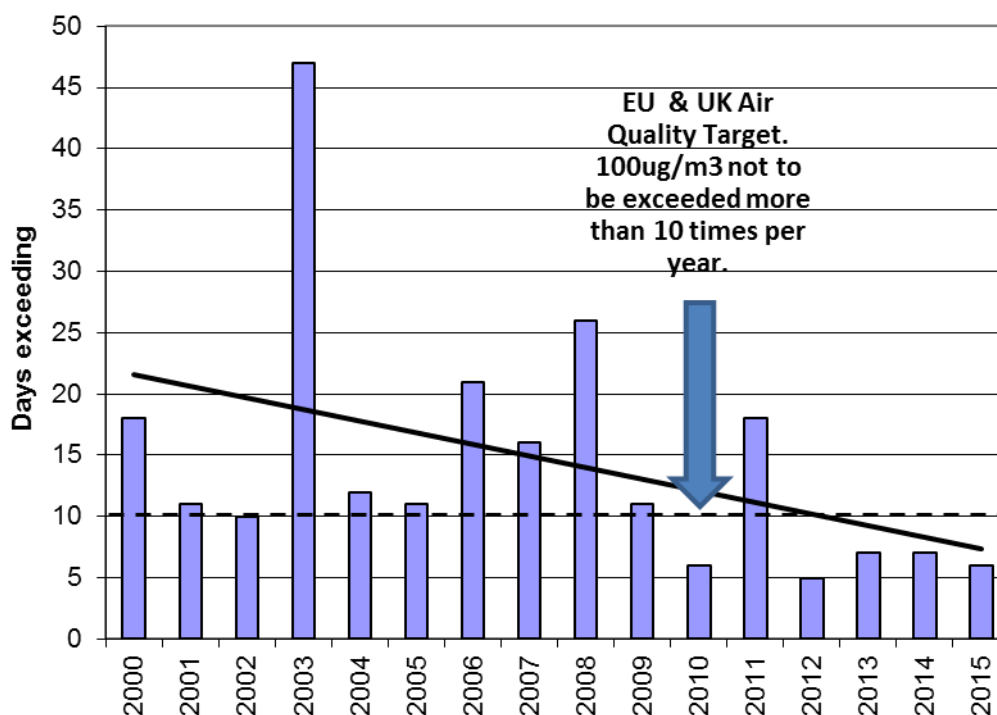
The long term trend for ozone exceedances shows a slight improvement over time as shown in Table 2.13 and Figure 2.15 below.



Table 2.12 - Annual ozone exceedances 2000 – 2015

Year	Exceedances of Air Quality Standard 8hr running mean > 100 µg/m <sup>3</sup>	No. of Days of Exceedance
2000	133	18
2001	81	11
2002	66	10
2003	403	47
2004	83	12
2005	56	11
2006	189	21
2007	108	16
2008	257	26
2009	71	11
2010	30	6
2011	147	18
2012	57	5
2013	45	7
2014	40	7
2015	40	6

Figure 2.16 - Days of ozone exceedances of the UK recommended AQO since 2000



### 2.3.1.5 Polyaromatic hydrocarbons (PAH)

Polycyclic aromatic hydrocarbons (PAHs) are a group of persistent organic compounds, some of which are toxic and/or possible or proven human carcinogens; they are produced through industrial and incomplete combustion of carbon containing fuels.

Air quality standards have been set by UK and EU and are based upon measurements of benzo[a]pyrene which is also known as B[a]P.

## Neath Port Talbot County Borough Council

The UK Air Quality Objective for PAHs is based on the recommendations of the Expert Panel on Air Quality Standards (EPAQS). It specifies an annual air quality standard of 0.25 ng/m<sup>3</sup> benzo[a]pyrene to be achieved by 2010.

The EU Air Quality Daughter Directive (2005/107/EC) specifies a target value of 1 ng/m<sup>3</sup> for the annual mean concentration of benzo[a]pyrene to be achieved by 2012.

Monitoring of benzo[a]pyrene first commenced at Groeswen Hospital in 1999 using an Anderson sampler. This equipment was replaced by a Digitel sampler in the last quarter of 2007. Monitoring now takes place at Port Talbot Fire Station following the redevelopment of Groeswen Hospital site.

Data is published on the UK-Air website and the latest data available is for the year of 2015.

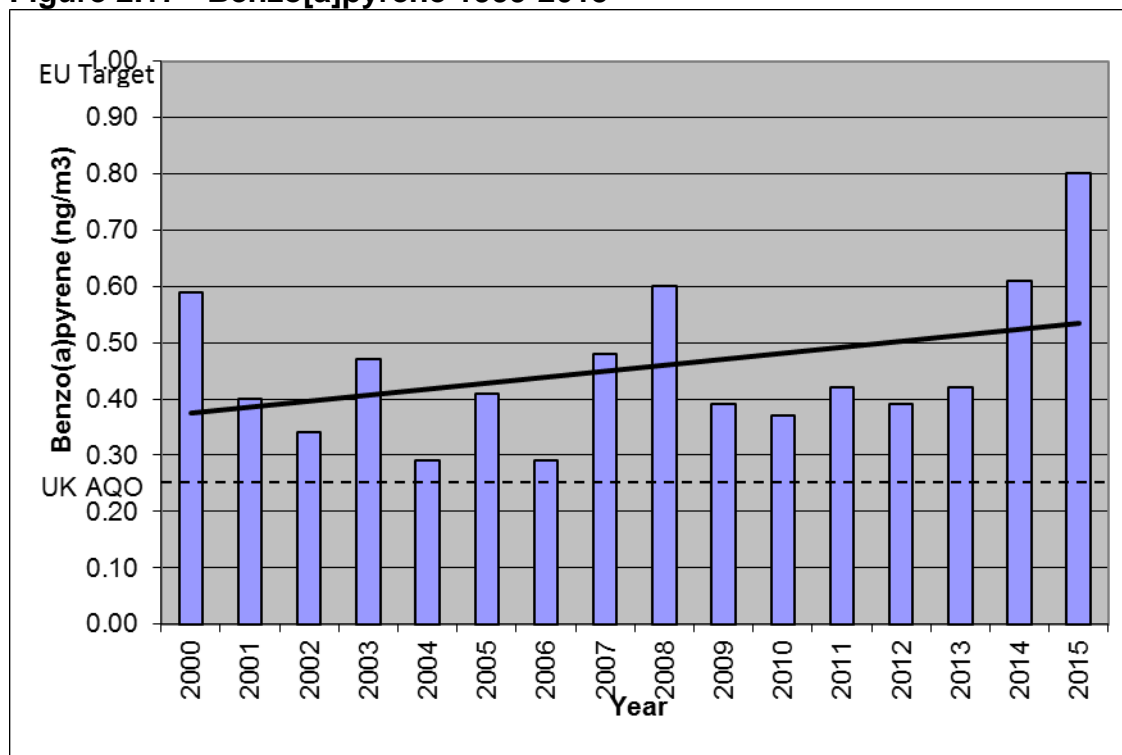
**Table 2.13. - Benzo[a]pyrene annual averages 1999-2015**

<b>B[a]P ng/m<sup>3</sup></b>	<b>Year</b>
0.24	1999
0.59	2000
0.40	2001
0.34	2002
0.47	2003
0.29	2004
0.41	2005
0.29	2006
0.48	2007
0.60	2008
0.39	2009
0.37	2010
0.42	2011
0.39	2012
0.42	2013
0.61	2014
0.80	2015

The results are shown graphically in figure 2.16 below. The B[a]P concentration at Port Talbot frequently exceeds the Air Quality Objective of 0.25 ng/m<sup>3</sup>, but is less than the EU target value of 1 ng/m<sup>3</sup>. The trend line shows that B[a]P levels are increasing over time.

A report by Ricardo-AEA in 2004 identified four sites on the network where there were compliance problems with the UK Air Quality Objective. Sites in Northern Ireland and Scotland were probably related to use of solid fuel in domestic heating. Whereas Scunthorpe and Port Talbot were due to the steel works (probably coke production).

Figure 2.17 - Benzo[a]pyrene 1999-2015



### 2.3.1.6 Metals monitoring

Monitoring of the concentrations of 13 airborne metals has been carried out continuously in the Pontardawe area since 1972. Pumps continuously sample ambient air and particles are collected on filters that are analysed by Ricardo-AEA. Until 1997, this work was carried out at Trebanos Sewage Works. Following a programme of construction at the site, monitoring was re-located to Pontardawe Leisure Centre. The objectives are to establish whether local industry has any significant impact upon airborne metal concentrations in the area. The Pontardawe site is approximately 4km downwind of the Nickel works at Clydach, as compared to the Trebanos site, which was about 2km from the works. The Pontardawe site is also approximately 1km upwind of Wall Colmonoy, a manufacturer of metal alloys which is subject to an Environmental Permit issued by this Authority.

Monitoring was carried out in respect of the following metals:

- Lead (Pb)
- Nickel (Ni)
- Zinc (Zn)
- Arsenic (As)
- Cadmium (Cd)
- Chromium (Cr)
- Copper (Cu)
- Iron (Fe)
- Cobalt (Co)
- Selenium (Se)
- Antimony (Sb)
- Cerium (Ce)

- Scandium (Sc)

In December 2004 the European Union published a Directive relating to arsenic, cadmium, mercury, nickel and PAH, (2004/107/EC). This “4<sup>th</sup> Daughter Directive” set target values for arsenic, cadmium, nickel and benzo[a]pyrene (a PAH) for the total content in the PM<sub>10</sub> fraction averaged over a calendar year. No limits or targets were set for mercury. The Directive target values for metals are shown below and were to be achieved by 31<sup>st</sup> December 2012:

**Nickel**      20 ng/m<sup>3</sup>  
**Arsenic**     6 ng/m<sup>3</sup>  
**Cadmium**    5 ng/m<sup>3</sup>

The Directive requires measurement of air concentrations to be made using valid PM<sub>10</sub> monitoring methods. The polypropylene ducts previously used to hold the filters did not conform exactly to a PM<sub>10</sub> inlet specification and monitoring using a compliant method commenced during 2006. This necessitated the purchase of a Partisol 2025 sampler manufactured by Rupprecht & Patashnick Inc. The new and existing samplers were run concurrently for a period in order to assess the comparability of the results. The existing sampler was discontinued at the end of 2006 following completion of the comparability test.

## Results

### 2.3.1.6.1 Pontardawe Leisure Centre

The annual mean nickel concentration found in 2015 was 14.6 ng/m<sup>3</sup>, which is 73% of the Target Value to be met by the end of 2012.

The annual mean concentrations of arsenic and cadmium have been found to be 0.56 ng/m<sup>3</sup> and 0.15 ng/m<sup>3</sup> respectively. These concentrations represent approximately 9.3% and 3% of their proposed EU target values of 6 and 5 ng/m<sup>3</sup> respectively.

Lead results have been discussed in section 2.2.5.1 above.

### 2.3.1.6.2 Port Talbot

Metals have also been measured as part of the UK Metals Network at Port Talbot Fire Station since February 2008. Some of the metals monitored in the network are different to those measured at Pontardawe Leisure Centre e.g. platinum (Pt), vanadium (V) and mercury (Hg). The annual average of monthly results are shown in Table 2.15, where they are also compared to the corresponding figures for Pontardawe.

The nickel concentration at Port Talbot in 2015 (5.0 ng/m<sup>3</sup>) was 25% the EU Target of 20 ng/m<sup>3</sup>. This figure is significantly increased over 2014 (1.8 ng/m<sup>3</sup>), mainly due to two high results during the year.

## Neath Port Talbot County Borough Council

The annual mean concentrations of arsenic and cadmium have been found to be 0.66 ng/m<sup>3</sup> and 0.36 ng/m<sup>3</sup> respectively. These concentrations represent approximately 11.0% and 7.2% of their EU target values of 6 and 5 ng/m<sup>3</sup> respectively.

Lead results have been discussed in section 2.2.5.1 above.

The level of iron in the atmosphere at Pontardawe (206 ng/m<sup>3</sup>) is only 6.3% of the corresponding concentration at Port Talbot (3253 ng/m<sup>3</sup>). Whilst the concentration iron in Port Talbot does not represent a concern in respect of health, it represents approximately 11% of the PM<sub>10</sub> measured in Port Talbot and highlights the influence of the Port Talbot steelworks.

### 2.3.1.6.3 Pontardawe Tawe Terrace

A new monitoring station was set up in September 2009, which is approximately 270 metres from Wall Colmonoy's Part B permitted site in Pontardawe. This monitoring station was set up in order to further investigate the potential for nickel emissions from this site, which uses approximately 500 tonnes of the metal each year to manufacture a variety of hard-wearing products. The monitoring station uses a Partisol 2000 sampler with filters provided and analysed by the National Physical Laboratory (NPL) in accordance with BS EN 14902.

The average concentration of nickel in 2015 was 22.1 ng/m<sup>3</sup> which is 110% of the Air Quality Objective. This is a significant improvement upon the figure recorded in 2014 (43.4 ng/m<sup>3</sup>).

The annual mean concentrations of arsenic and cadmium have been found to be 0.68 ng/m<sup>3</sup> and 0.16 ng/m<sup>3</sup> respectively. These concentrations represent approximately 11.3% and 3.2% of their EU target values of 6 and 5 ng/m<sup>3</sup> respectively.

### 2.3.1.6.4 Brecon Road, Pontardawe

The monitoring station was set up in August 2011 and is approximately 500m north east of the Wall Colmonoy site. The monitoring station was set up to be as close as possible to the area predicted to have the highest modelled nickel downwind concentrations in a residential location. The monitoring station uses a Partisol 2000 sampler with filters provided and analysed by the National Physical Laboratory (NPL) in accordance with BS EN 14902.

The average concentration of nickel in 2015 was 9.23ng/m<sup>3</sup> which is 46.2% of the Air Quality Objective. The following chart shows the nickel results from all sites in the Swansea Valley since monitoring first began in 1972. Some data is from monitoring sites operated by Swansea City Council.

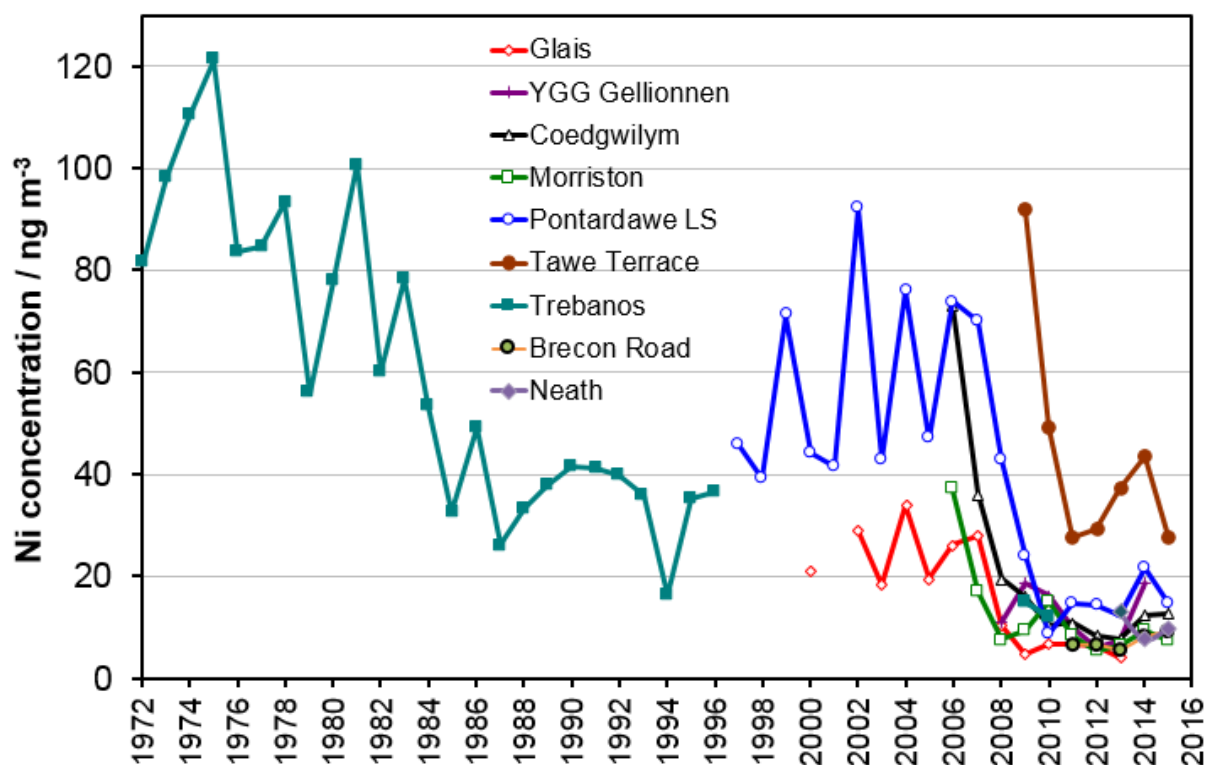
## Neath Port Talbot County Borough Council

The annual mean concentrations of arsenic and cadmium have been found to be 1.04 ng/m<sup>3</sup> and 0.15 ng/m<sup>3</sup> respectively. These concentrations represent approximately 17.3% and 3.0% of their EU target values of 6 and 5 ng/m<sup>3</sup> respectively.

**Table 2.14 - Annual average metal concentrations during 2015**

Element	2015 annual mean concentration (ng/m <sup>3</sup> )			
	Port Talbot	Pontardawe Brecon Road	Pontardawe Leisure Centre	Tawe Terrace
As	0.66	1.04	0.56	0.68
Cd	0.36	0.15	0.15	0.16
Ce		-	0.19	-
Co	0.29	0.24	0.64	1.43
Cr	24.2	19.9	4.41	8.87
Cu	7.31	5.00	3.73	5.06
Fe	3253	208	206	180
Hg*	-	-	-	-
Mn	38.1	3.57	-	4.06
Ni	5.00	9.23	14.6	<b>22.1</b>
Pb	9.92	6.43	6.31	5.97
Sb	-	-	1.00	-
Sc	-	-	0.12	-
Se	0.87	1.09	1.24	0.94
Zn	49.2	11.9	12.3	10.8
V	3.10	0.65	0.78	0.63

**Figure 2.18 - Nickel levels in Swansea Valley 1972 – 2015**

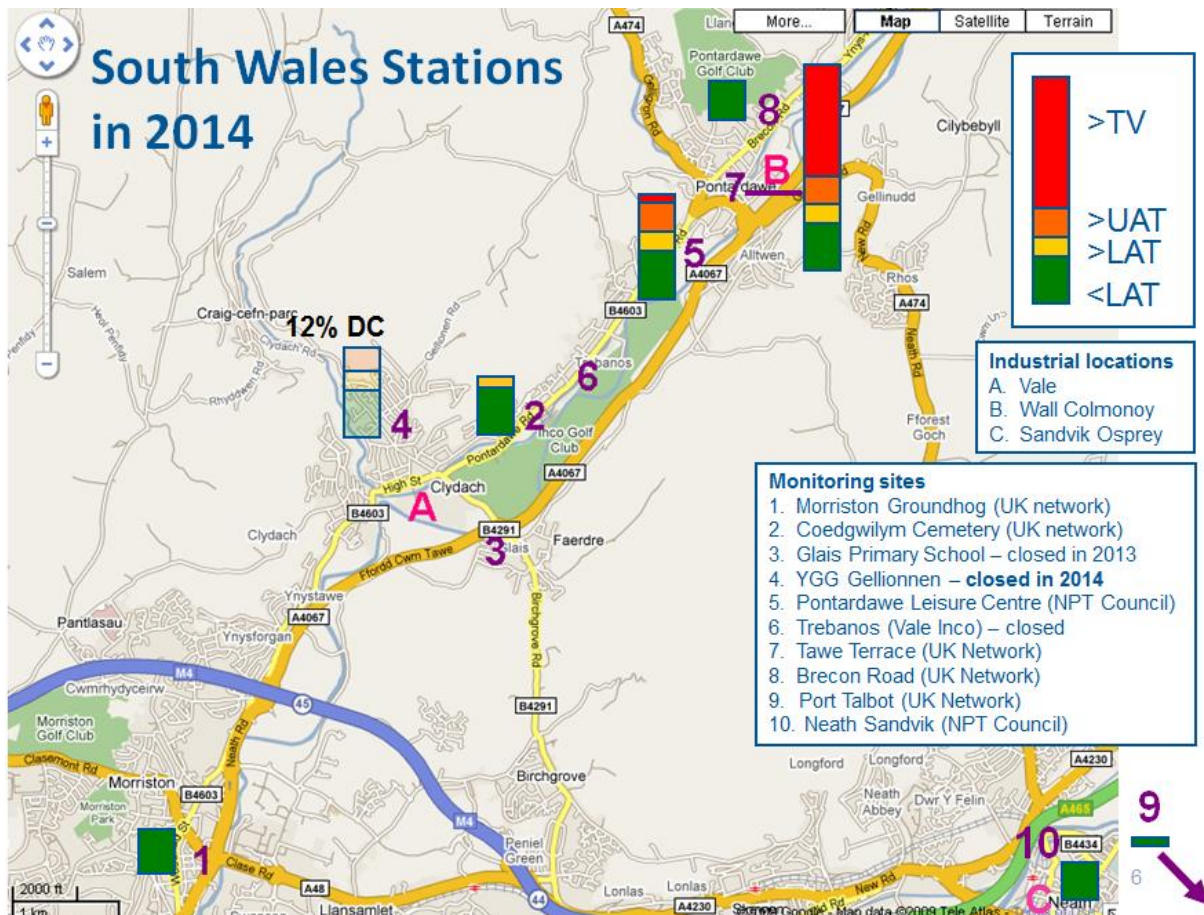


## Neath Port Talbot County Borough Council

Note: Graph produced by Richard Brown of NPL.

Figure 2.19 shows the location of all of these monitoring sites and their compliance relative to the Target value (TV = 20 ng/m<sup>3</sup>). The Lower Assessment Threshold (LAT = 10 ng/m<sup>3</sup>) and the Upper Assessment Threshold (14 ng/m<sup>3</sup>) are included for completeness, but do not have any implications if they are exceeded.

**Figure 2.19 Location of nickel monitoring stations in the Swansea Valley**



Note: Graph produced by Richard Brown of NPL.

Tawe Terrace is the only site which currently exceeds the E.U. Target. Levels of nickel at Tawe Terrace (22.1 ng/m<sup>3</sup>) decreased substantially compared to the 2014 value (43.4 ng/m<sup>3</sup>). This is likely to have been due to the improvements that were made at the Wall Colmonoy plant during 2014 and since.

Levels of arsenic and cadmium easily comply with EU Target values at all sites.

Lead results have been discussed in section 2.2.5.1 above.

### 2.3.1.7 Grit and dust monitoring

Previous reports have described how deposit gauges have been used to collect atmospheric fallout from a number of locations. The analysis of the collected grit and dust also includes a sophisticated characterisation of the deposit, using Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray Analysis (EDXA). During 2013, sampling of this kind took place at 12 sites in the County Borough.

The report includes results from the following locations:

- Prince Street, Margam, Port Talbot
- Port Talbot Fire Station
- Wembley Avenue, Onllwyn
- Eglwys Nunydd Reservoir, Margam, Port Talbot
- Little Warren, Port Talbot.
- Tairgwaith, Amman Valley
- Llygad yr Haul, Glynneath
- Gwaun Cae Gurwen, Amman Valley
- Cil Carne Farm, Bryn, Port Talbot
- Parish Road, Cwmgwrach
- Dyffryn School, Bertha Road, Port Talbot.
- Ochwr y Waun, Cwmllynfell

Pie charts and time series graphs are presented for each site for 2013 and the preceding year as a comparison. The pie charts show the average percentage composition of the samples collected during the year, with the average fallout rates of each component in mg/m<sup>2</sup>/day underneath. The time series show how the fallout rate has changed over the course of the year. The pie charts define the composition of the collected deposit into the following categories:

- Coal – unburned coal.
- Carbonised – partly burnt carbon based material that may be derived from combustion of coal, oil, wood etc.
- Sand – sand and silica based minerals.
- Dirt – aluminium, sodium, potassium, silicon, iron and calcium, usually combined with oxygen. e.g. silicates, clay, building materials and other mineral material typically found in soil and earth.
- Fly Ash – spherical mineral particles having arisen from combustion.
- Plant/Animal – miscellaneous fragments of insects, plant material etc.
- Calcium Rich – particles with an unusually high calcium content e.g. chalk, cement etc.
- Iron Rich – particles consisting of, or rich in iron.
- Others – anything not falling into the categories above.

Additional information is provided to indicate the annual average and maximum fallout levels, the data capture rate, and the number of days exceeding<sup>1</sup> (or within

---

<sup>1</sup> The average fallout rate is calculated by taking the total fallout during a sampling period of about 4 weeks and dividing that figure by the number of days. If the average for that sampling period is greater than 200 mg/m<sup>2</sup>/day then the result is reported as "number of days exceeding" equal to



## Neath Port Talbot County Borough Council





10% of) the “nuisance limit” (200 mg/m<sup>2</sup>/day), which some recognise as relevant for this method of monitoring. However it should be noted that this “limit” is not a statutory limit and the public perception of what constitutes a nuisance might now suggest that a lower “limit” would be appropriate. The Minerals Technical Advice note from Welsh Government suggests a limit of 80 mg/m<sup>2</sup>/day for coal working. The advice note can be found at this location:

<http://wales.gov.uk/docs/cabinetstatements/2009/090120coaltanen.pdf>

A map showing the locations of each of the monitoring sites is also shown in Figure 2.20. Figures 2.21 to 2.44 comprise pairs of time series and pie charts for each site. The time series charts show how the fallout rate has varied over the period(s) concerned, whilst the pie charts show the average composition. The tables that accompany the charts highlight any differences that may have occurred over the period. Figure 2.45 shows the average fallout rate for each site during 2015 in a bar chart, and Table 2.16 holds the data for this chart. The sites are ranked in a table and graphically according to the average fallout rate. Figure 2.46 and Table 2.17 show how fallout rates have varied in the long term.

Fallout levels have been categorised as “low”, “moderate”, “high”, or “very high” in order to aid comprehension. These categories are defined by this Authority and are not official categories.

**Table 2.15 - Fallout categories as defined by NPT**

Fallout rate mg/m <sup>2</sup> /day	Category
< 40	 Low
40 to 79	 Moderate
80 to 159	 High
> 159	 Very high

Each site description includes a coloured bar to show it’s categorisation as well as an indication of the percentage change in fallout rates over the last year alongside.

---

the number of days in the sampling period. The total number of days exceeding for the year is the sum of each of these periods where the average was greater than 200 mg/m<sup>2</sup>/day.

## Results by site

### 2.3.1.7.1 Cil Carne Farm, Bryn, Port Talbot (Figs. 2.21 & 2.22) **Low** -38%

The “nuisance limit” was not exceeded in 2015 and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 40 mg/m<sup>2</sup>/day and the average 24 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 79 and 39 mg/m<sup>2</sup>/day respectively. There was 38% decrease in fallout rates compared to the previous year.

### 2.3.1.7.2 Prince Street, Port Talbot (Figs. 2.23 & 2.24) **Very high** +1%

The “nuisance limit” (200 mg/m<sup>2</sup>/day) was exceeded on 147 days in 2015 and there were a further 46 days within 10% of the “nuisance limit”. During the previous year there were exceedances on 165 days. In 2015, the maximum fallout rate was 482 mg/m<sup>2</sup>/day and the average 226 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 430 and 223 mg/m<sup>2</sup>/day respectively. The average fallout was effectively static with an increase of only 1%.

### 2.3.1.7.3 Port Talbot Fire Station (Figs. 2.25 & 2.26) **Very high** +4%

The “nuisance limit” was exceeded on 183 days during 2015 and there were 30 days within 10% of the “nuisance limit”. The corresponding figures for 2014 were 237 days exceeding the “nuisance limit” and 30 days within 10%. The maximum fallout rate was 459 mg/m<sup>2</sup>/day and the average 215 mg/m<sup>2</sup>/day, and the corresponding values for 2014 were 524 and 224 mg/m<sup>2</sup>/day respectively. There was a 4% decrease in fallout rates compared to the previous year.

### 2.3.1.7.4 Eglwys Nunydd Reservoir, Port Talbot (Figs. 2.27 & 2.28) **Moderate** -37%

The “nuisance limit” was not exceeded during 2015 and there were no days within 10% of the “nuisance limit”. This was also the case in 2014. The maximum fallout rate was 75 mg/m<sup>2</sup>/day and the average 40 mg/m<sup>2</sup>/day, and the corresponding values for 2014 were 134 and 63 mg/m<sup>2</sup>/day respectively. There was a 37% decrease in fallout rates compared to the previous year.

### 2.3.1.7.5 Gwaun Cae Gurwen (Figs. 2.29 & 2.30) **Low** -14%

The “nuisance limit” was not exceeded during 2014 and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 71 mg/m<sup>2</sup>/day and the average 24 mg/m<sup>2</sup>/day, and the corresponding values for 2013 were 144 and 28 mg/m<sup>2</sup>/day respectively. There was an 14% decrease in fallout rates compared to the previous year.

### 2.3.1.7.6 Tairgwaith (Figs. 2.31 & 2.32) **Low** -38%

The “nuisance limit” was not exceeded and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 27 mg/m<sup>2</sup>/day and the average 15 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 71 and 24 mg/m<sup>2</sup>/day

## Neath Port Talbot County Borough Council

respectively. There was a 38% decrease in fallout rates compared to the previous year.

### 2.3.1.7.7 Parish Road, Cwmgwrach (Figs. 2.33 & 2.34) Low -11%

The “nuisance limit” was not exceeded and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 98 mg/m<sup>2</sup>/day and the average 33 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 94 and 37 mg/m<sup>2</sup>/day respectively. There was a 11% decrease in fallout rates compared to the previous year.

### 2.3.1.7.8 Llygad yr Haul, Glynneath (Figs. 2.35 & 2.36) Low -9%

The “nuisance limit” was not exceeded and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 76 mg/m<sup>2</sup>/day and the average 29 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 93 and 32 mg/m<sup>2</sup>/day respectively. There was a 9% decrease in fallout rates compared to the previous year.

### 2.3.1.7.9 Wembley Avenue, Onllwyn (Figs. 2.37 & 2.38) Low -39%

The “nuisance limit” was not exceeded and no samples reached within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 43 mg/m<sup>2</sup>/day and the average 19 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 66 and 31 mg/m<sup>2</sup>/day respectively. This represented an decrease of 39%, which was mainly due to less coal fallout.

### 2.3.1.7.10 Little Warren, Port Talbot (Figs. 2.39 & 2.40) High +42%

The “nuisance limit” was not exceeded in 2015 but there were 28 days which were within 10% of 200 mg/m<sup>2</sup>/day. The maximum fallout rate was 186 mg/m<sup>2</sup>/day and the average 92 mg/m<sup>2</sup>/day, the corresponding values for 2014 were 178 and 65 mg/m<sup>2</sup>/day respectively. There was a 42% increase in fallout rates compared to the previous year.

### 2.3.1.7.11 Dyffryn School, Port Talbot (Figs. 2.41 & 2.42) High +9%

The “nuisance limit” was exceeded on 54 days during 2015 and there were also 30 days within 10% of the “nuisance limit”. There were 54 days exceeding the nuisance limit during 2014. The maximum fallout rate was 248 mg/m<sup>2</sup>/day and the average 104 mg/m<sup>2</sup>/day, and the corresponding values for 2014 were 207 and 95 mg/m<sup>2</sup>/day respectively. There was a 9% decrease in fallout rates compared to the previous year.

### 2.3.1.7.12 Cwmllynfell (Figs. 2.43 & 2.44) Moderate -39%

The “nuisance limit” was exceeded on 28 days during 2015 but no samples were within 10% of the “nuisance limit”. The maximum fallout rate was 339 mg/m<sup>2</sup>/day and the average 77 mg/m<sup>2</sup>/day, and the corresponding values for 2014 were 259 and 126 mg/m<sup>2</sup>/day respectively. There was an 39% decrease in fallout rates compared to the previous year, which was mainly due to more dirt.

**2.3.1.7.13 Summary**

The sites at Prince Street and Port Talbot Fire Station remain as top ranked in terms of average fallout rate. 2015 was another poor year for both sites with fallout rates at or near record levels in both cases. Levels at Prince Street were also close to historic highs. The average fallout rates at both sites exceeded the “nuisance limit” of 200 mg/m<sup>2</sup>/day. Natural Resources Wales is the regulator for the steelworks and has been informed of these results.

Figure 2.20 Deposit gauge locations



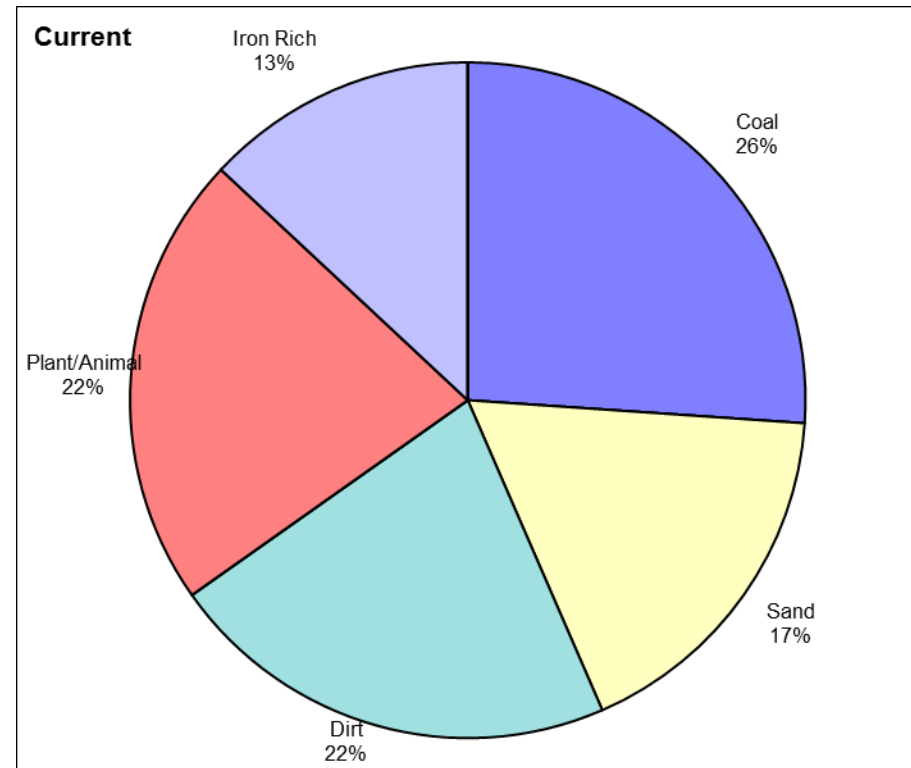
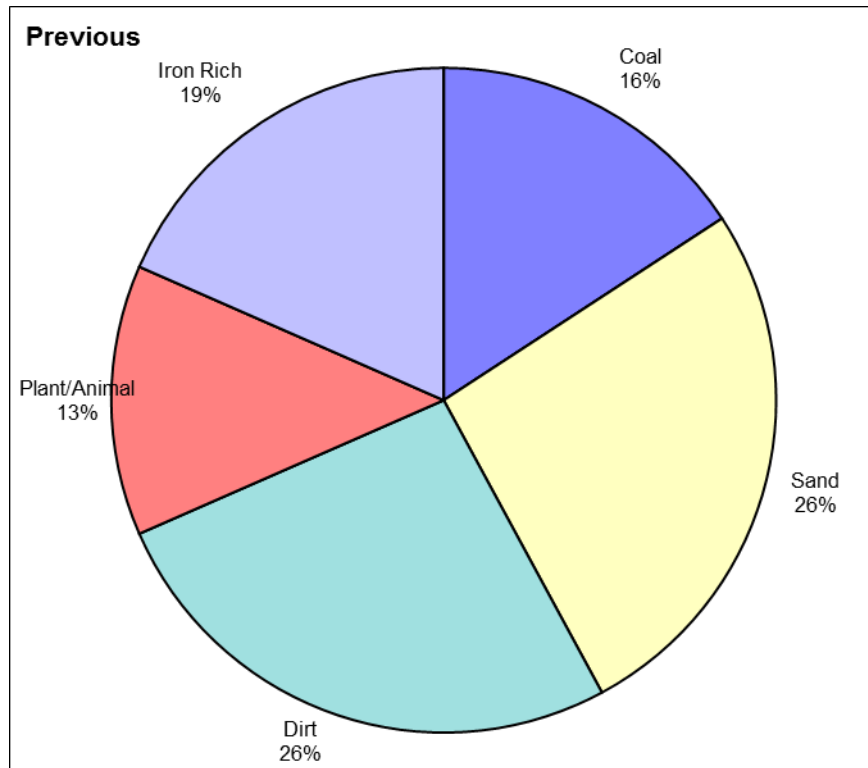
0 0.25 0.5 1 Miles

**Key**

Id	Address
1	Cil Carne Farm, Bryn, Port Talbot
2	41, Parish Road, Cwmgwrach
3	Primary School, Gwaun Cae Gurwen
4	2, Llygad Yr Haul, Glynneath
5	Port Talbot Fire Station, Margam, Port Talbot
6	24, Prince Street, Margam, Port Talbot
7	Eglwys Nunydd Reservoir, Margam, Port Talbot
8	11, Wembley Avenue, Onllwyn
9	Cardonnel Road, Skewen
10	Workingmen's Club, Tairgwaith
11	Little Warren, Aberafan, Port Talbot
12	Dyffryn School, Margam, Port Talbot
13	Ochwr y Waun, Cwmllynfell

## Deposit Gauge Analysis Report Cil Carne Farm, Port Talbot Comparison of Fallout Composition

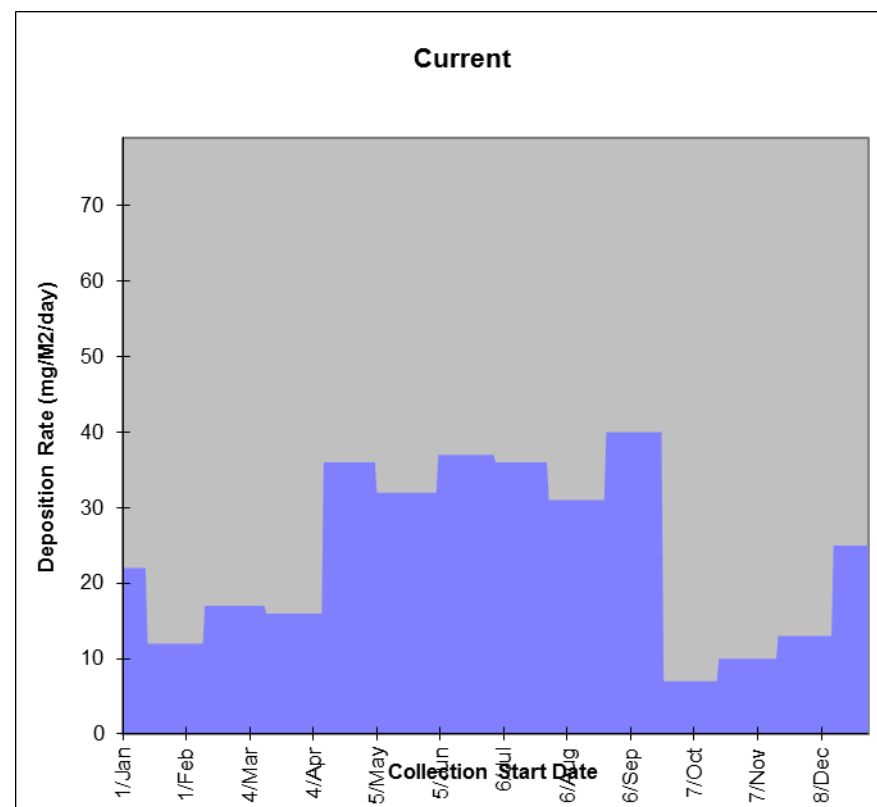
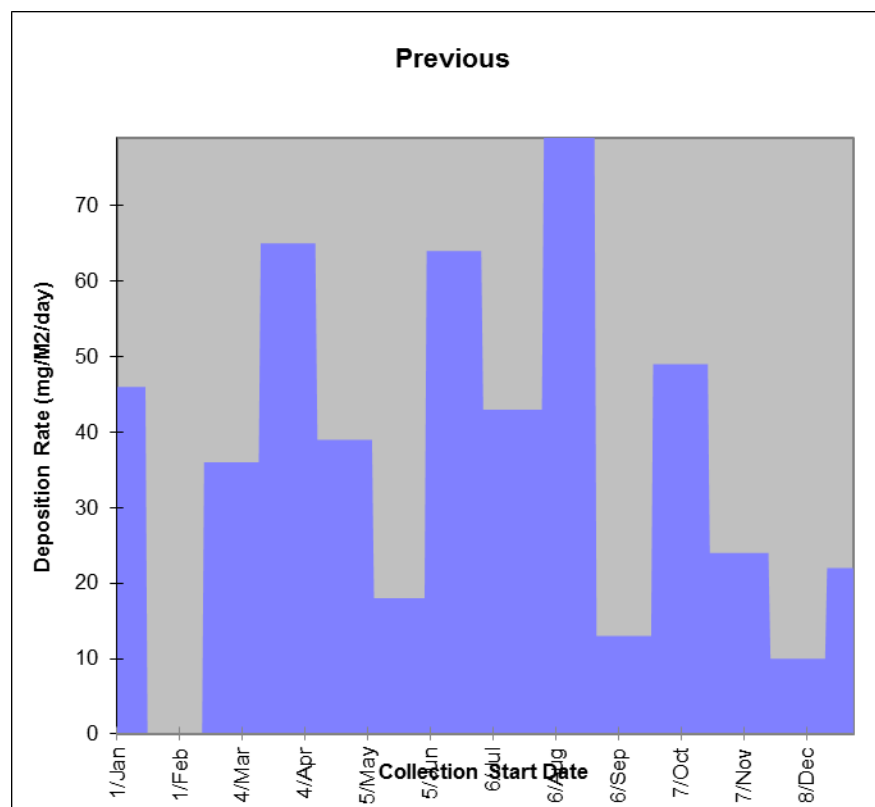
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-15 to 31-Dec-15



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	6	0	4	5	0	5	0	3	0
	Previous	6	0	10	10	0	5	0	7	0

## Deposit Gauge Analysis Report Cil Carne Farm, Port Talbot Comparison of Fallout Rate with Time

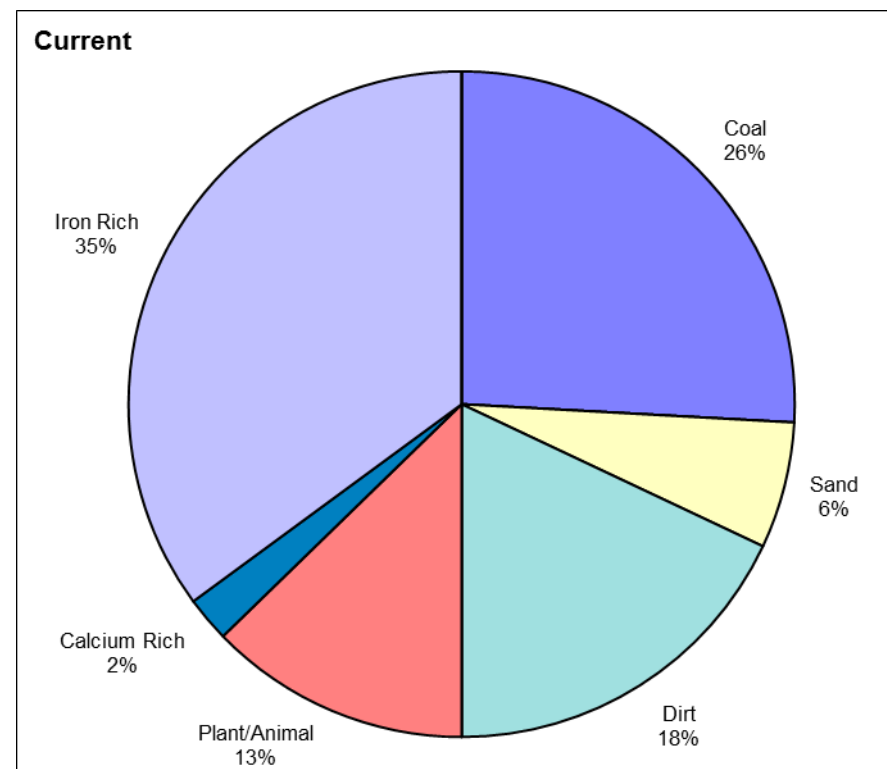
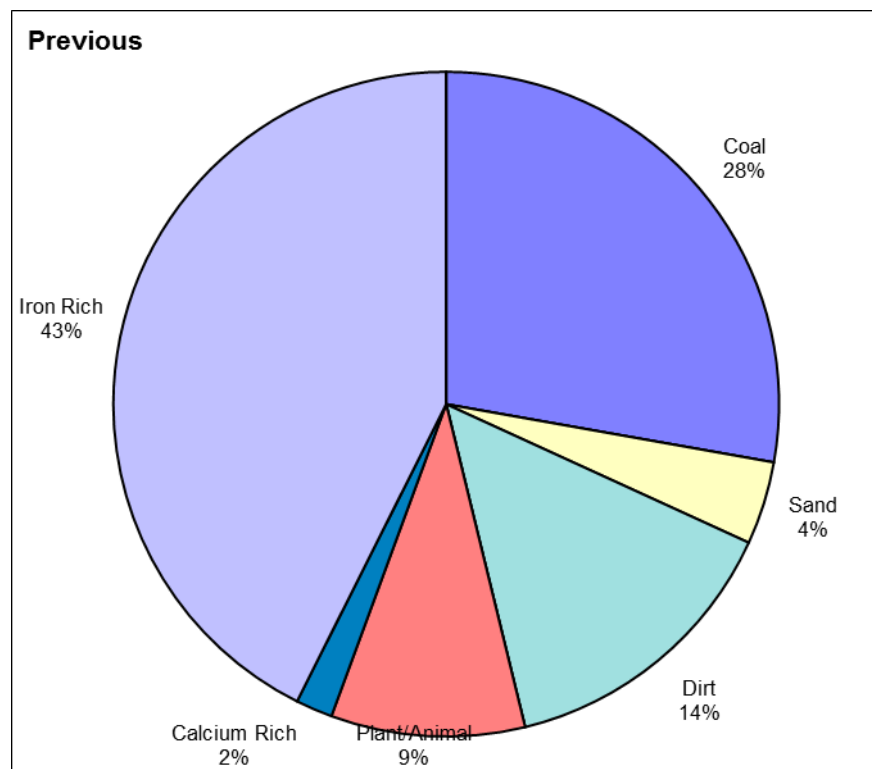
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	39	40	13	100.0	0	0
Previous	34	79	12	92.1	0	0
Change	5	Decrease -38%				

## Deposit Gauge Analysis Report 24, Prince Street, Port Talbot Comparison of Fallout Composition

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

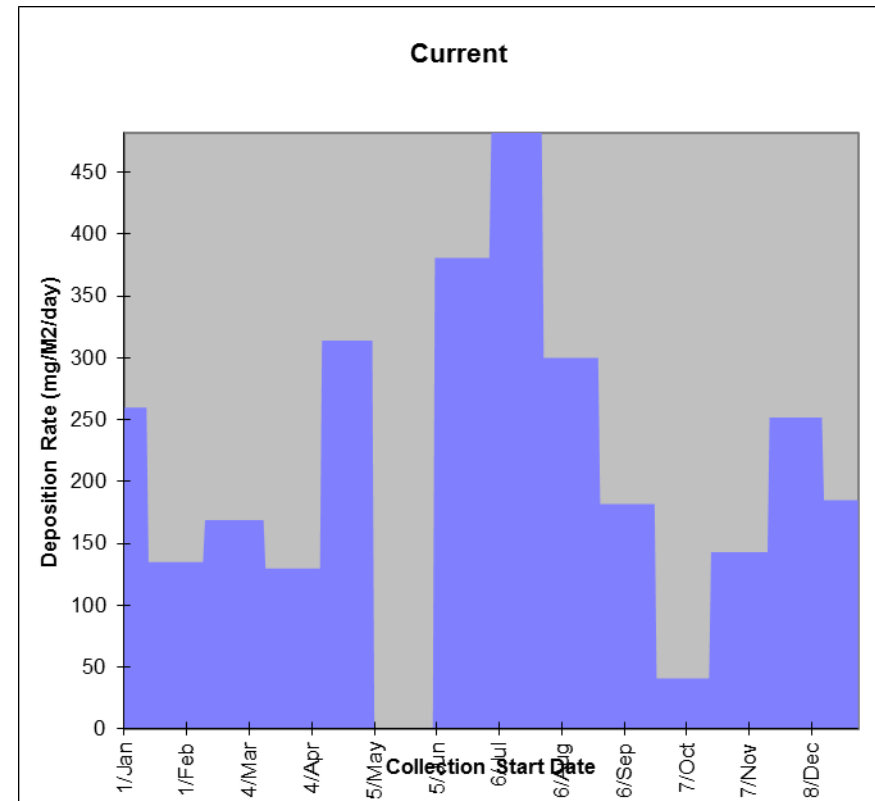
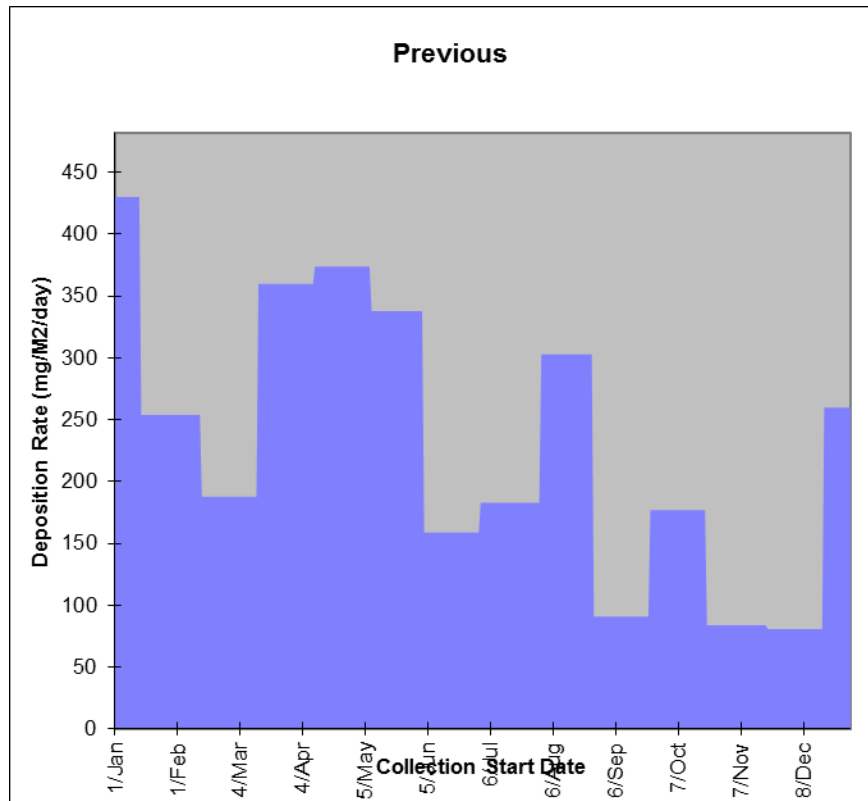


Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	59	0	14	41	0	29	5	80	0
	Previous	62	0	9	32	0	21	4	95	0



## Deposit Gauge Analysis Report 24, Prince Street, Port Talbot Comparison of Fallout Rate with Time

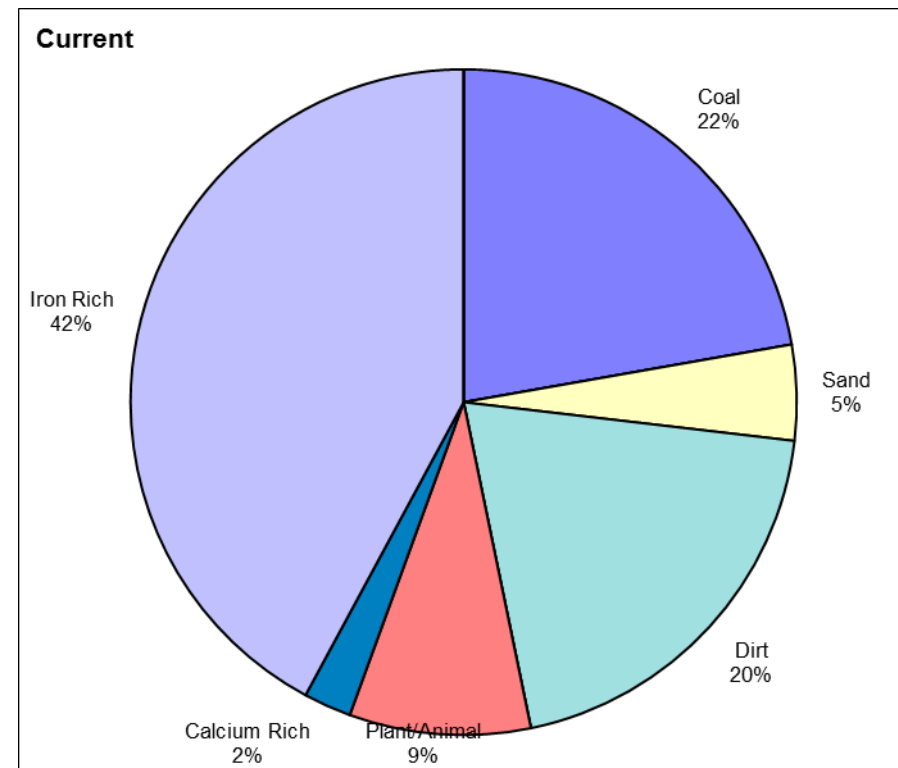
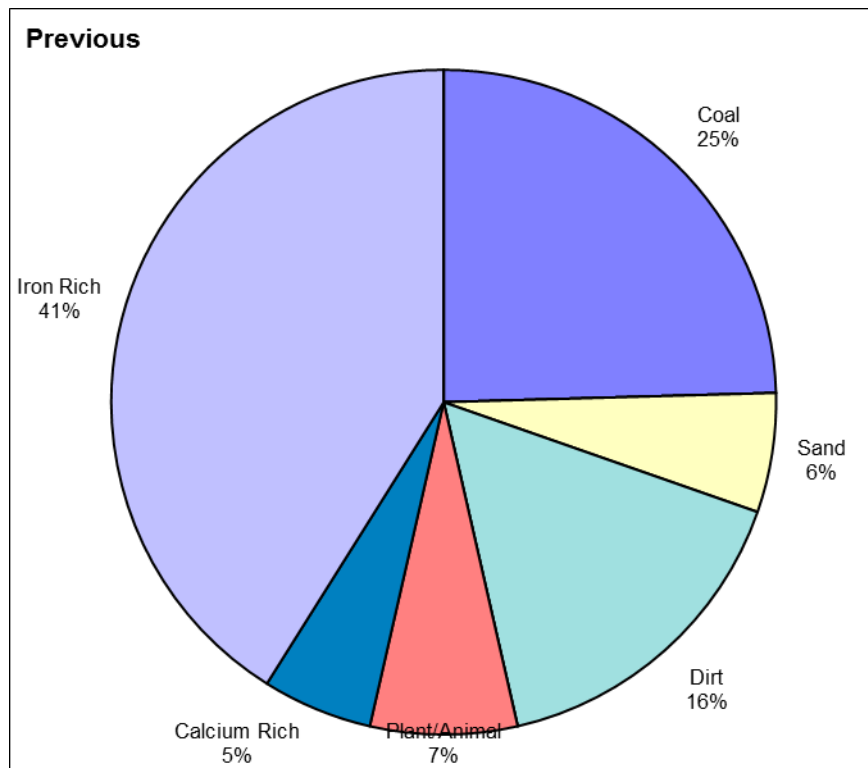
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	226	482	12	91.8	46	147
Previous	223	430	13	100.0	58	165
Change	3	Increase		1%		

## Deposit Gauge Analysis Report Port Talbot Fire Station Comparison of Fallout Composition

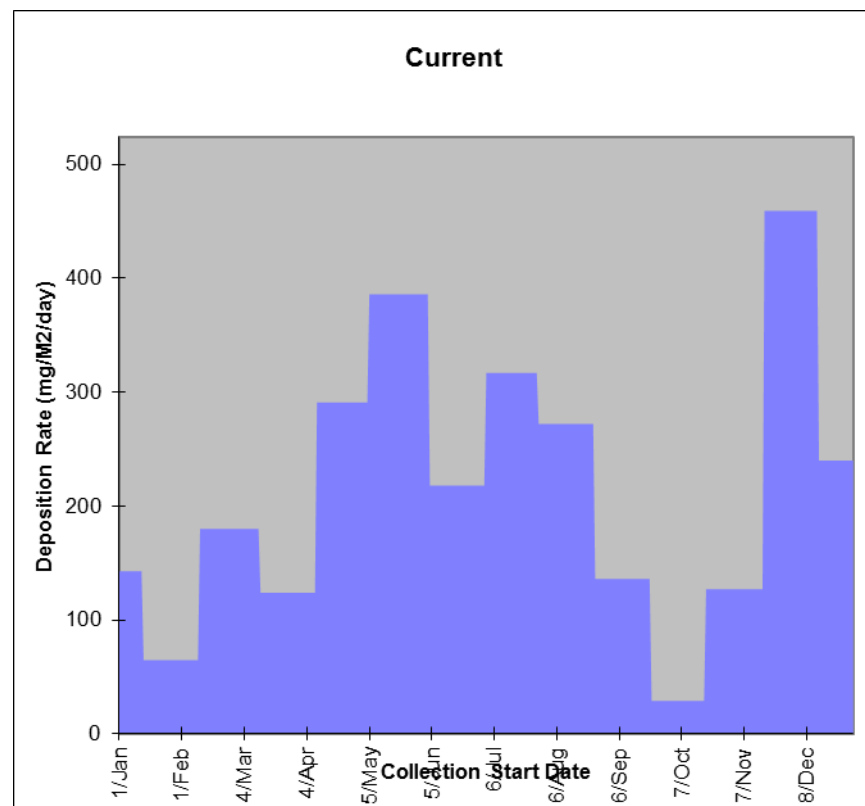
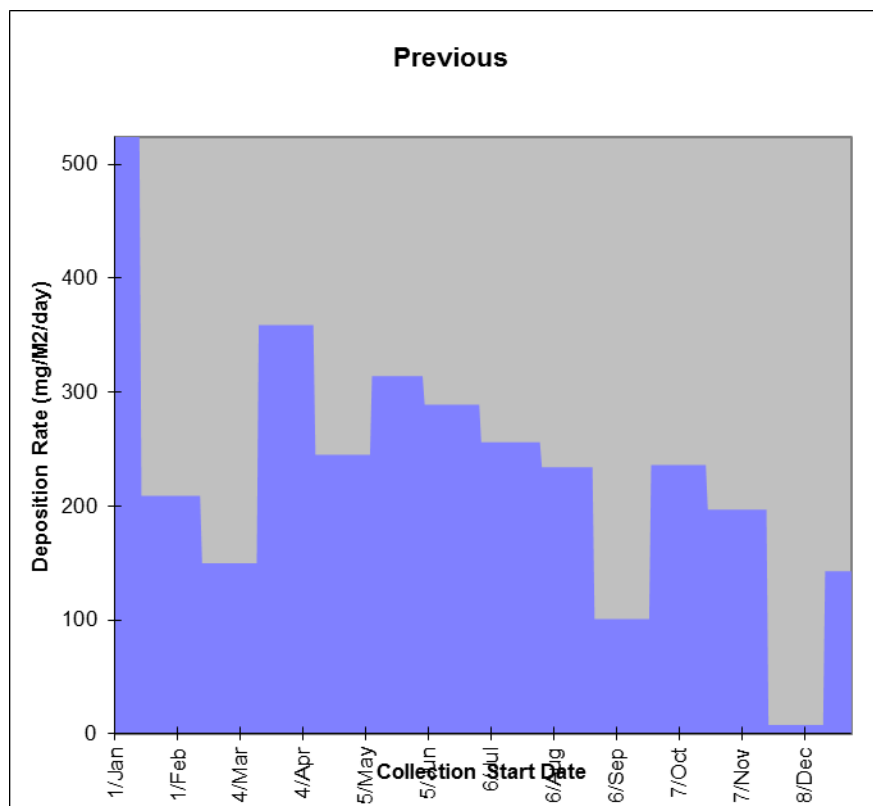
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	48	0	10	43	0	19	5	91	0
	Previous	55	0	13	36	0	16	12	92	0

## Deposit Gauge Analysis Report Port Talbot Fire Station Comparison of Fallout Rate with Time

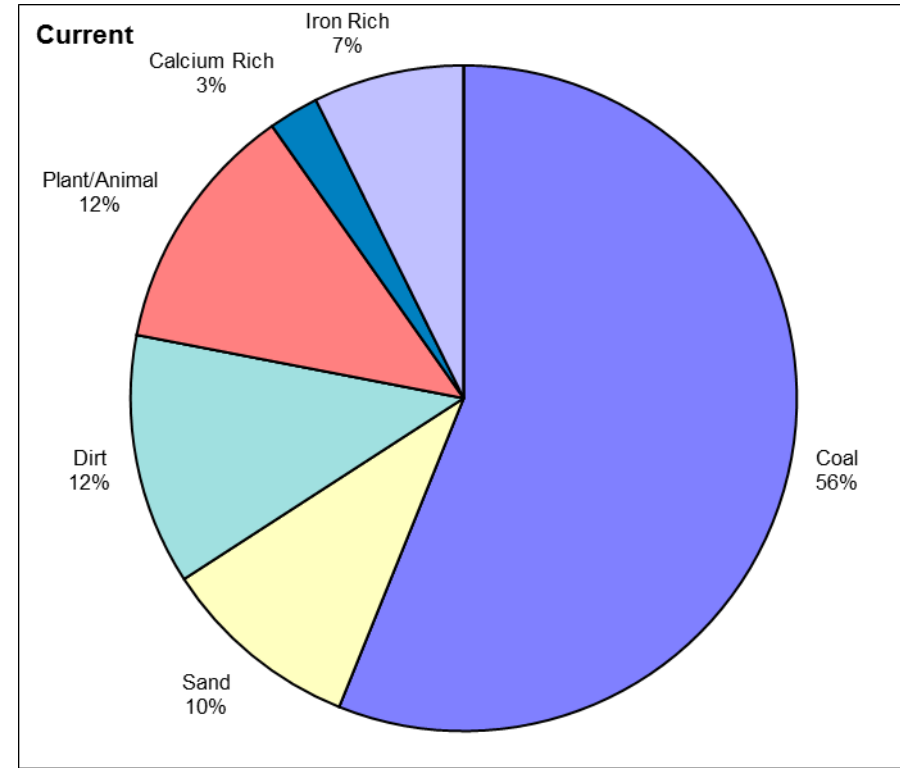
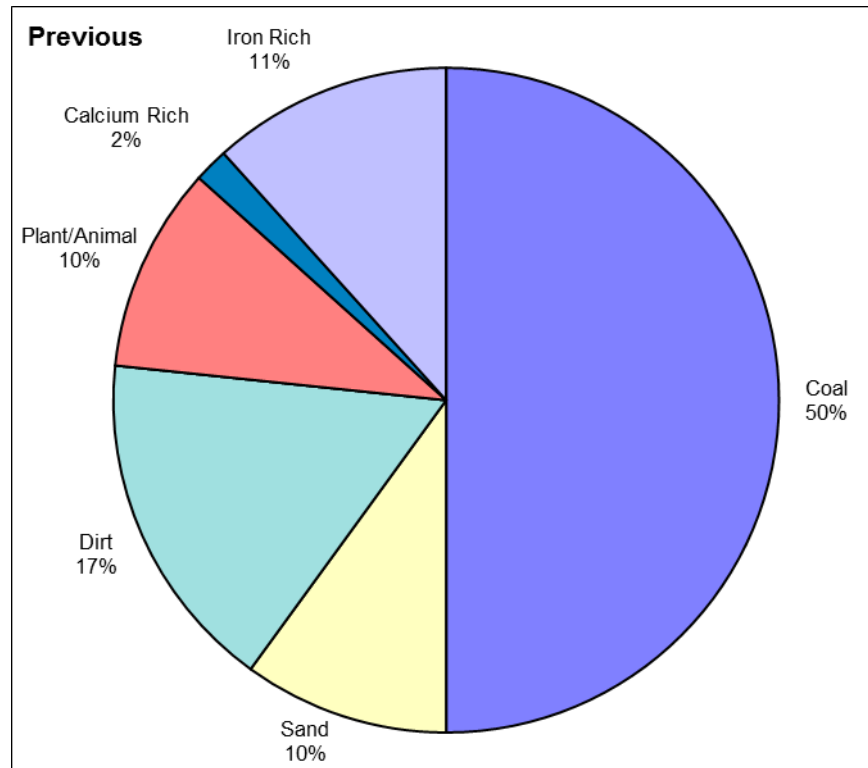
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
<b>Current</b>	215	459	13	100.0	30	183
<b>Previous</b>	224	524	13	100.0	30	237
<b>Change</b>	-9	Decrease				-4%

## Deposit Gauge Analysis Report Eglwys Nunydd Reservoir, Port Talbot Comparison of Fallout Composition

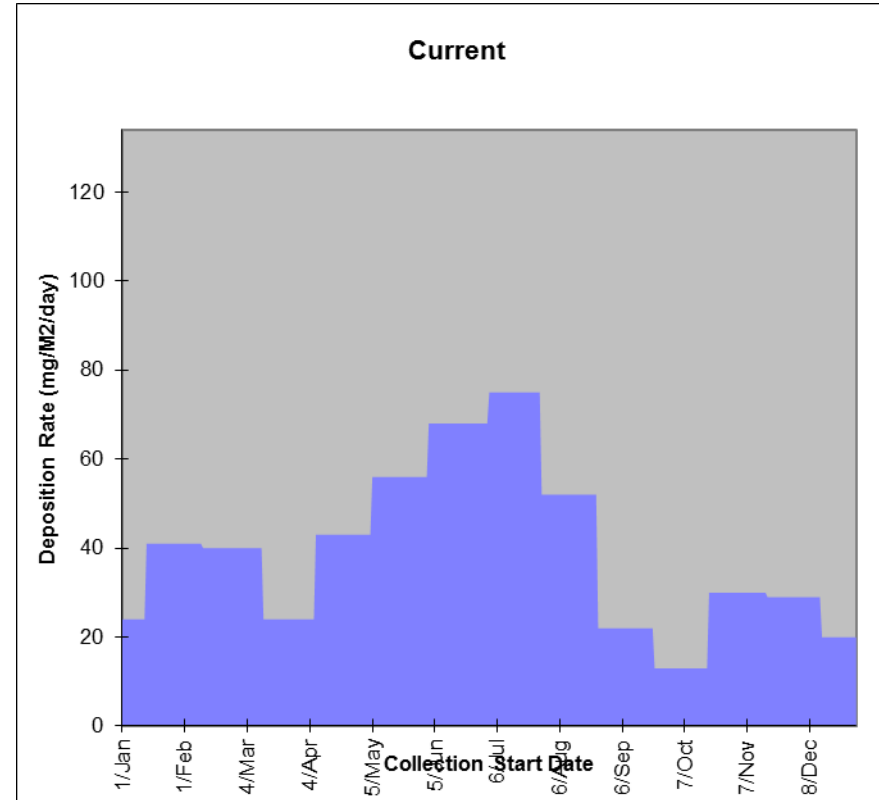
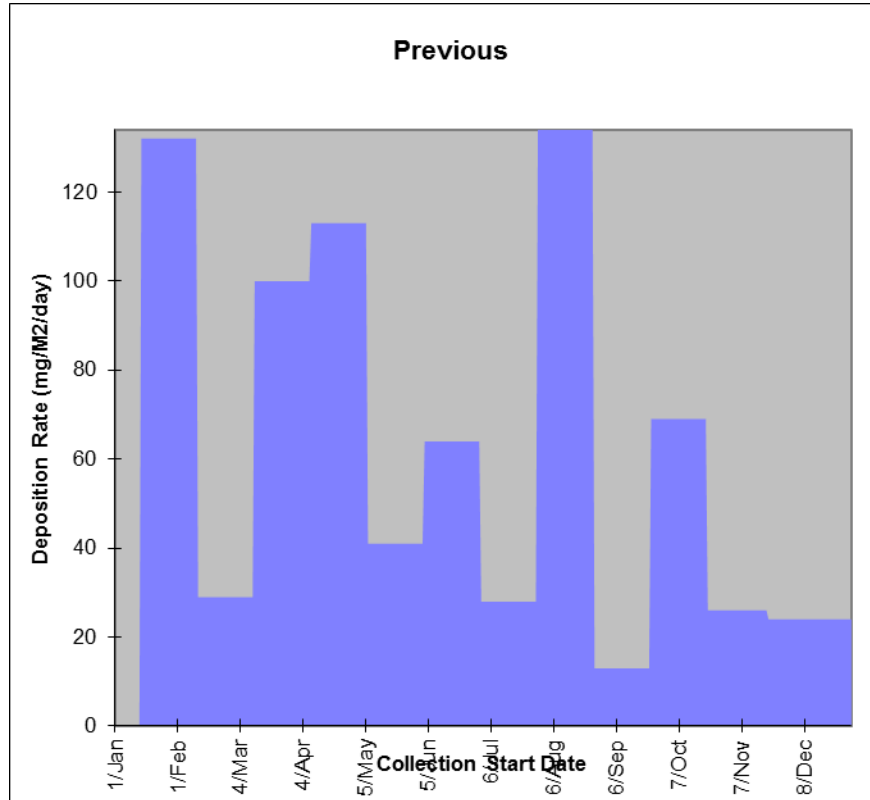
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	23	0	4	5	0	5	1	3	0
	Previous	30	0	6	10	0	6	1	7	0

## Deposit Gauge Analysis Report Eglwys Nunydd Reservoir, Port Talbot Comparison of Fallout Rate with Time

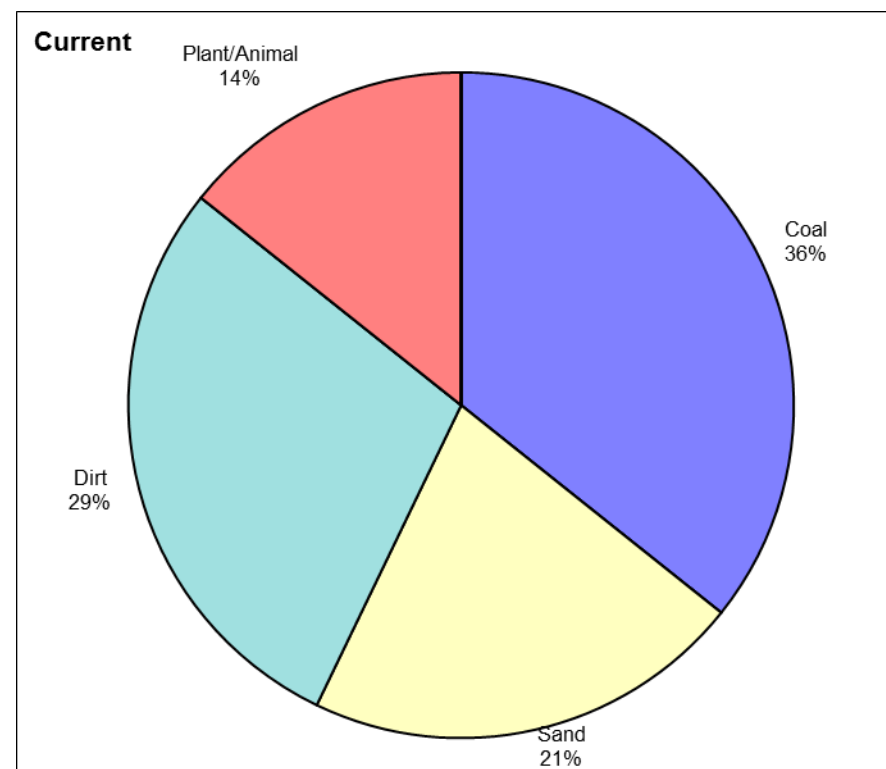
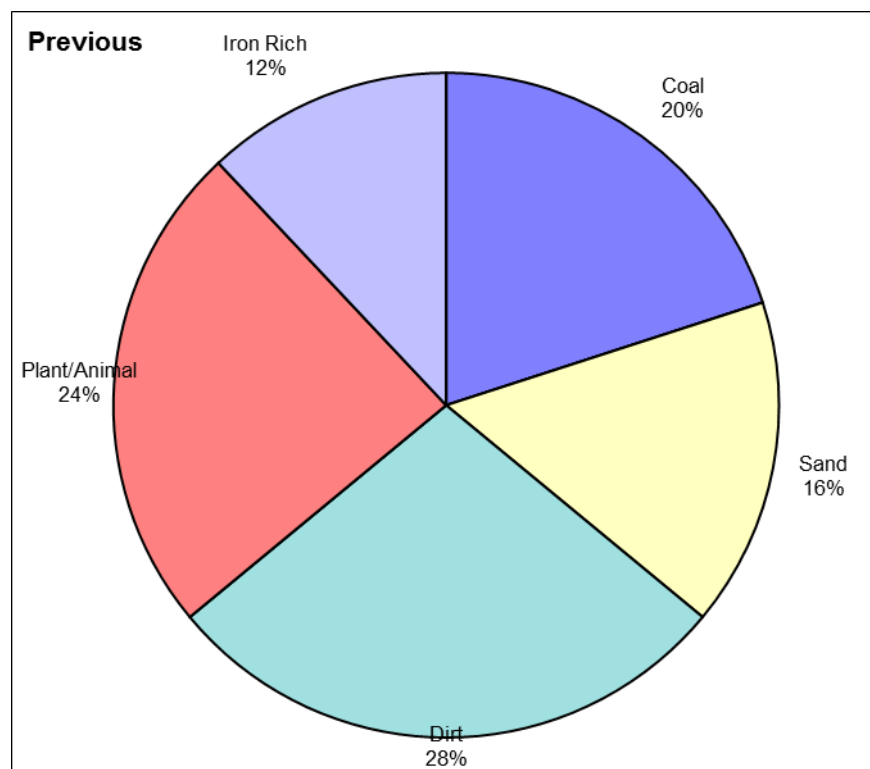
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	40	75	13	100.0	0	0
Previous	63	134	13	99.2	0	0
Change	-23	Decrease		-37%		

## Deposit Gauge Analysis Report Primary School, Gwaen Cae Gurwen Comparison of Fallout Composition

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

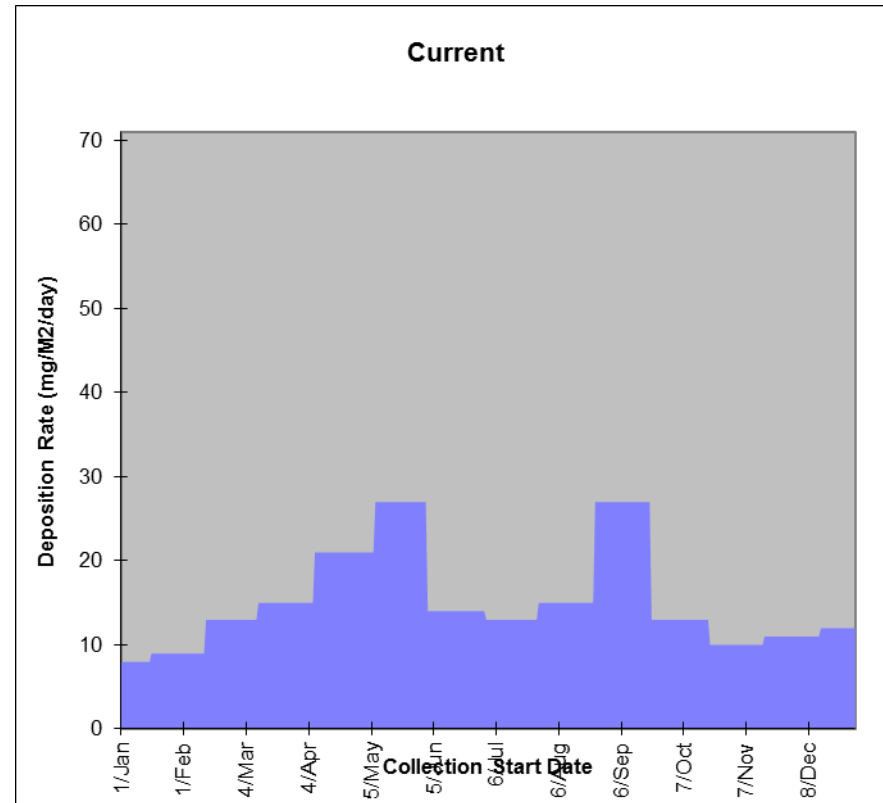
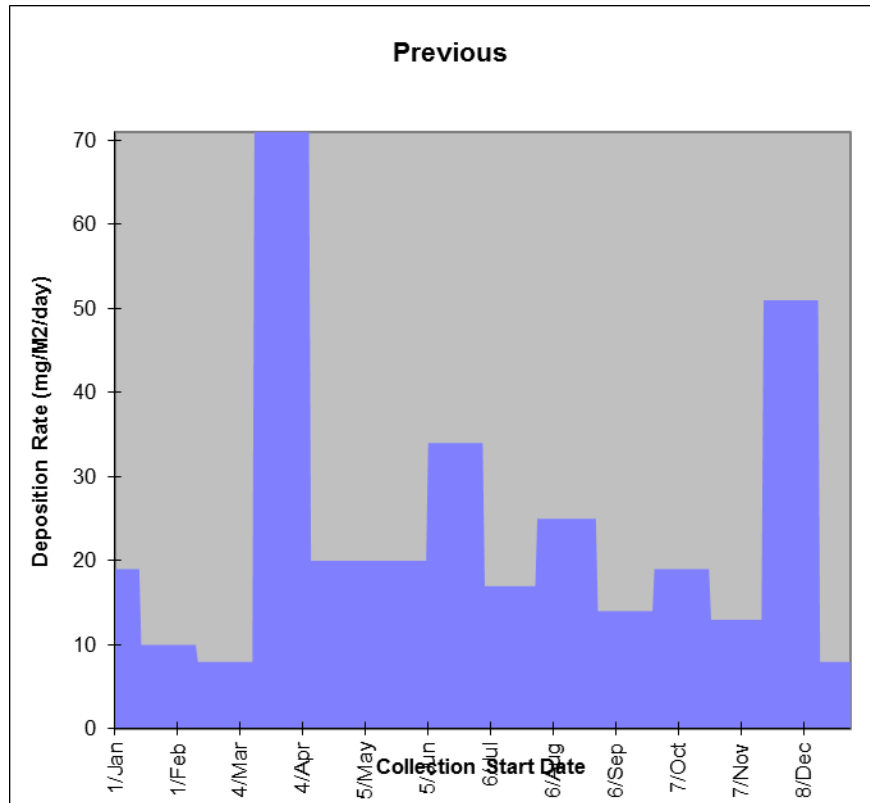


Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	5	0	3	4	0	2	0	0	0
	Previous	5	0	4	7	0	6	0	3	0

Figure 2.30 Gwaen Cae Gurwen fallout rates

## Deposit Gauge Analysis Report Primary School, Gwaen Cae Gurwen Comparison of Fallout Rate with Time

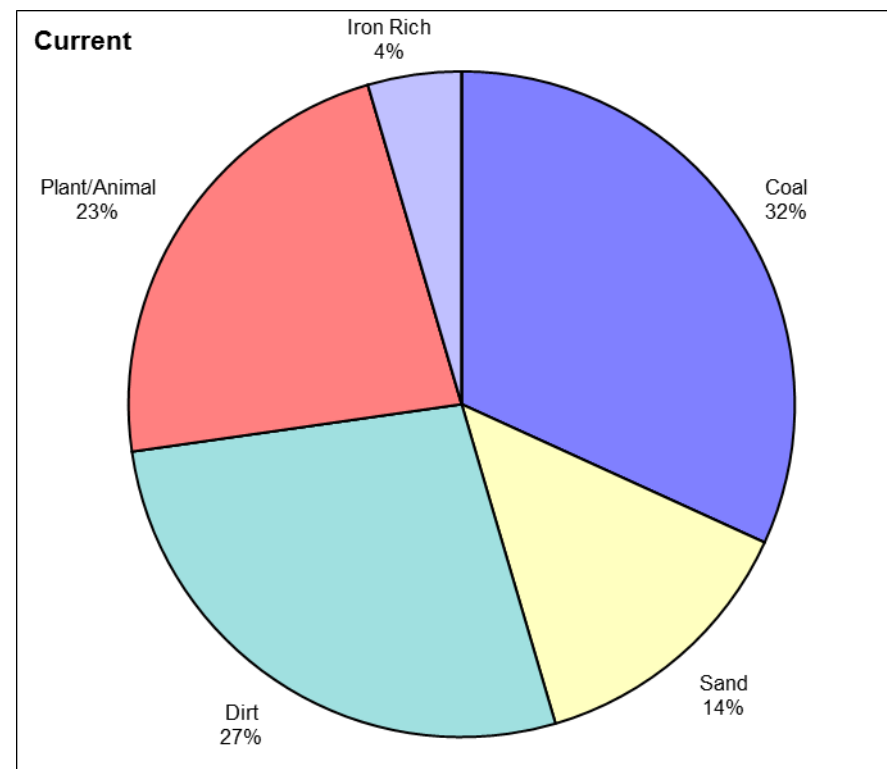
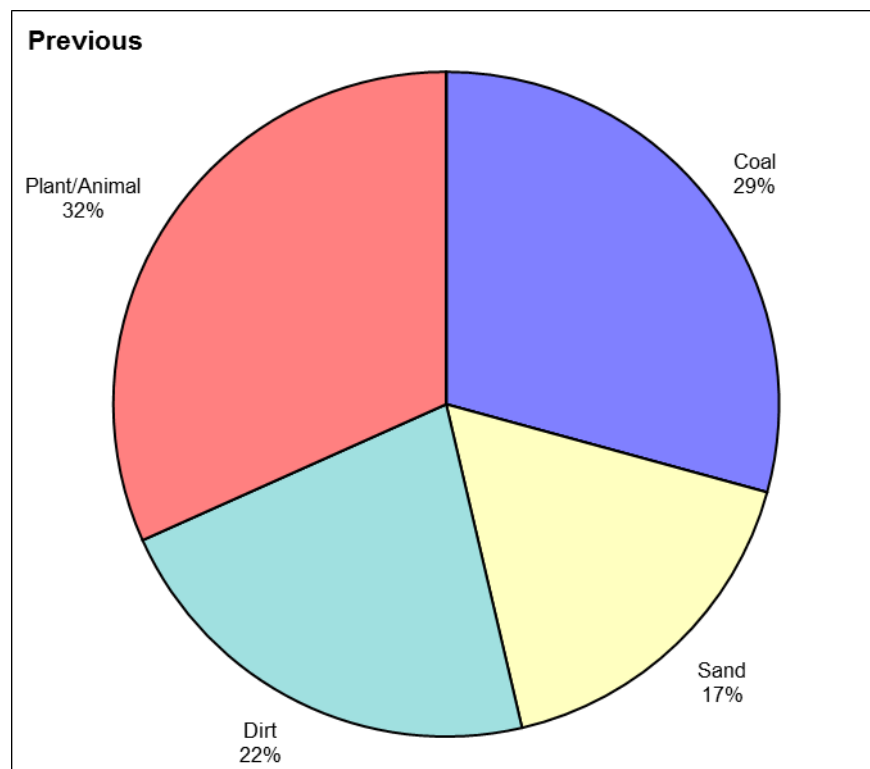
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	15	27	13	100.0	0	0
Previous	24	71	13	100.0	0	0
Change	-9	Decrease -38%				

## Deposit Gauge Analysis Report Workingmens Club, Tairgwaith Comparison of Fallout Composition

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



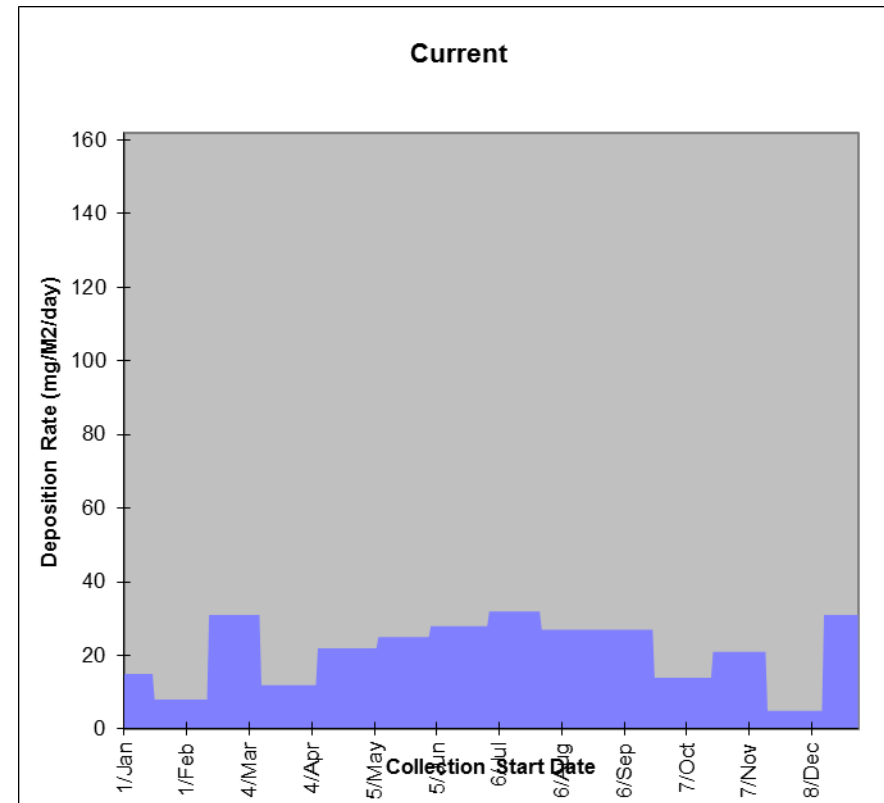
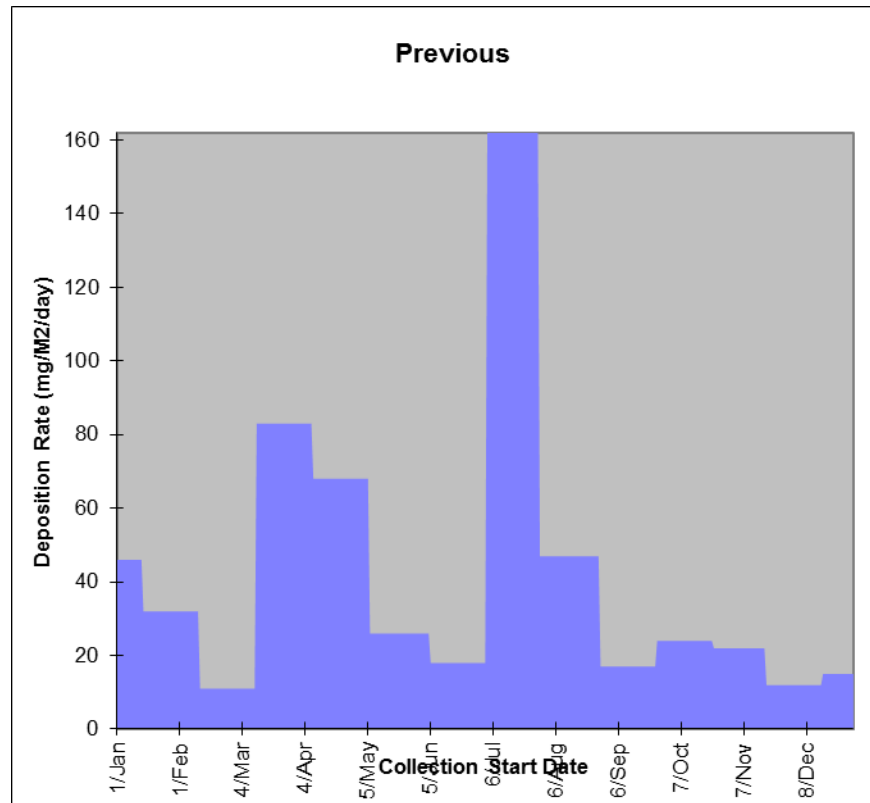
Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	7	0	3	6	0	5	0	1	0
	Previous	12	0	7	9	0	13	0	0	0



Figure 2.32 Tairgwaith fallout rates

## Deposit Gauge Analysis Report Workingmens Club, Tairgwaith Comparison of Fallout Rate with Time

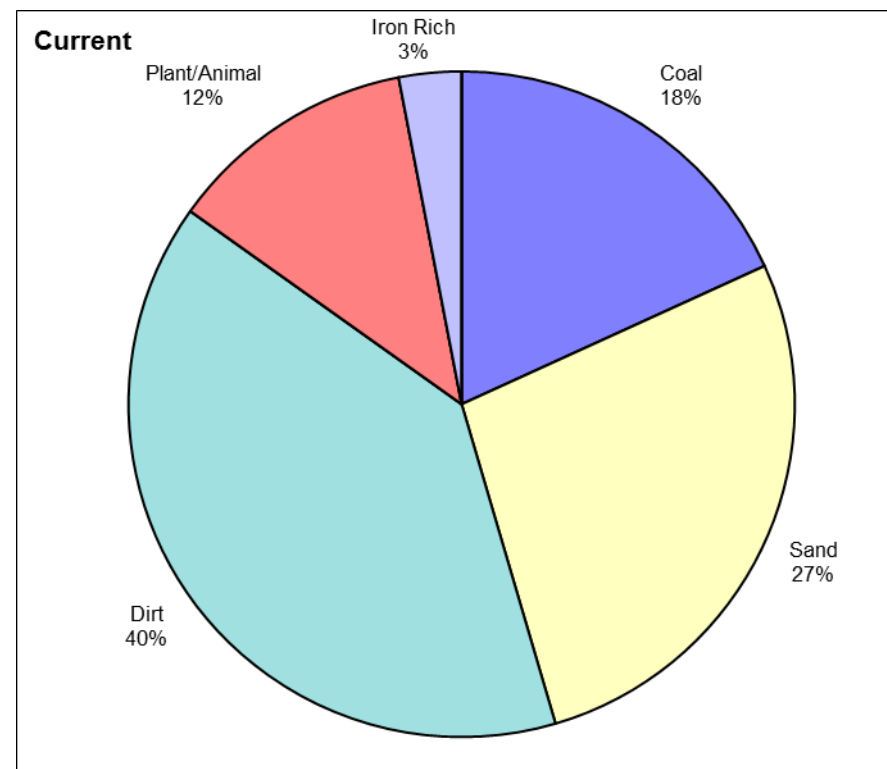
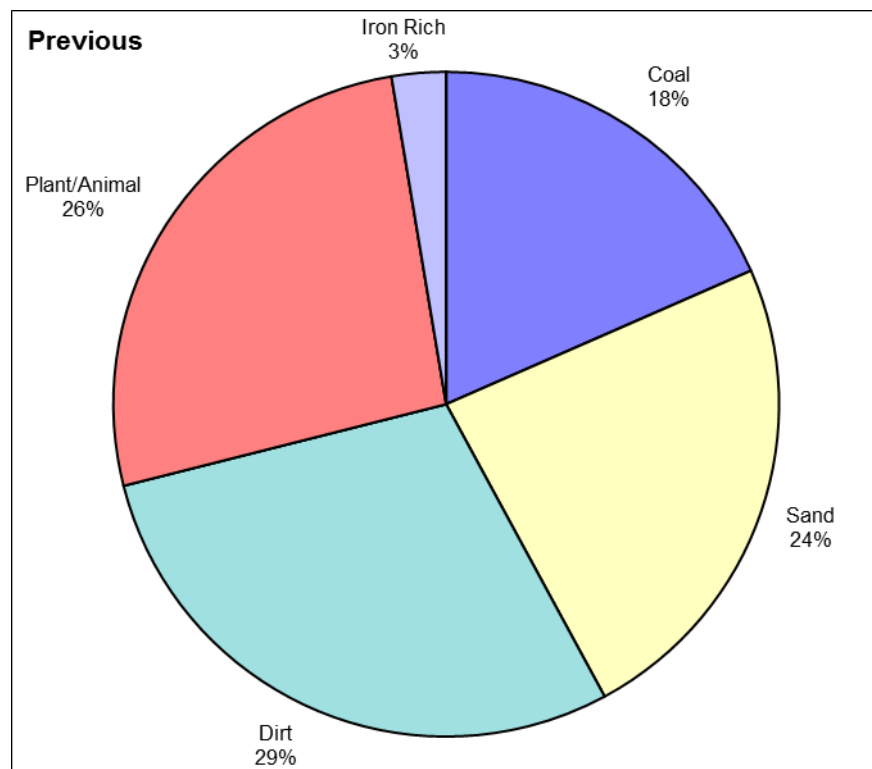
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	21	32	13	100.0	0	0
Previous	42	162	13	100.0	0	0
Change	-21	Decrease				-50%

## Deposit Gauge Analysis Report 41, Parish Road, Cwmgwrach Comparison of Fallout Composition

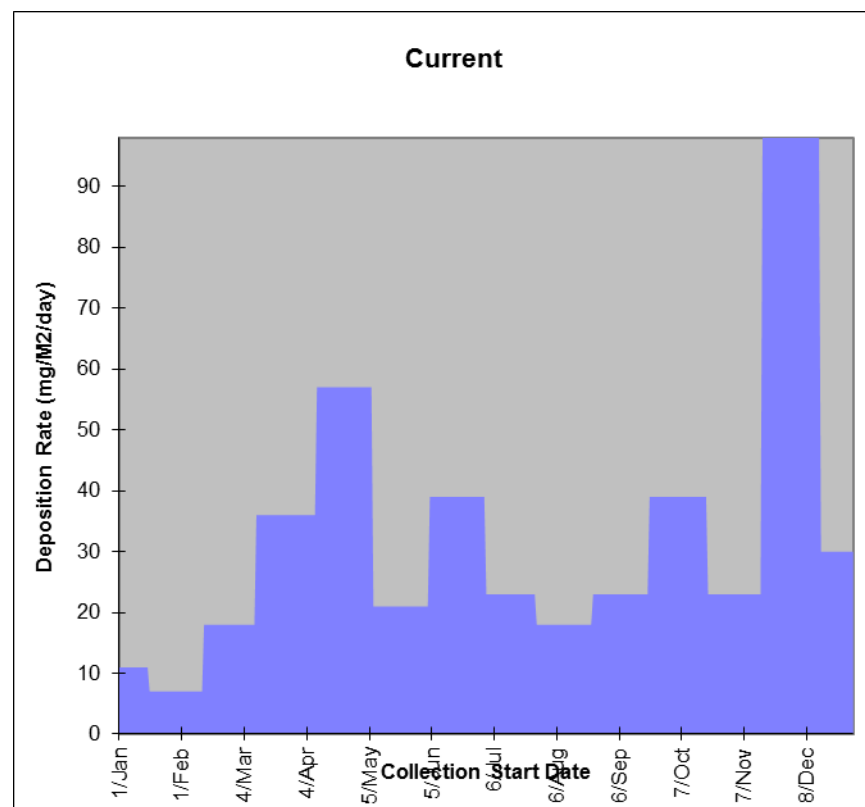
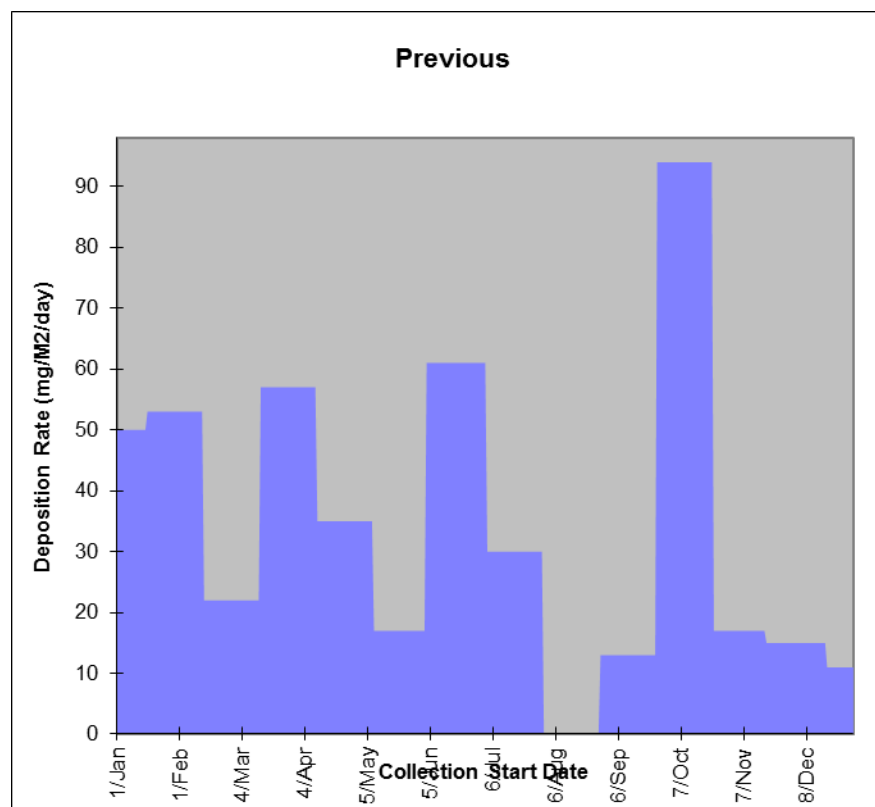
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	6	0	9	13	0	4	0	1	0
	Previous	7	0	9	11	0	10	0	1	0

## Deposit Gauge Analysis Report 41, Parish Road, Cwmgwrach Comparison of Fallout Rate with Time

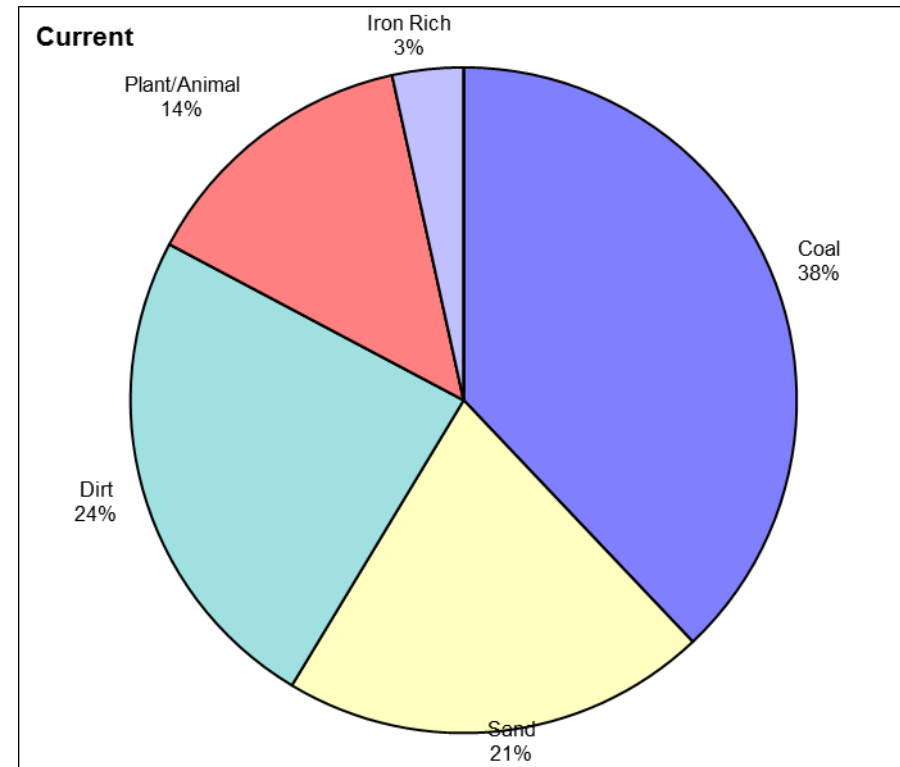
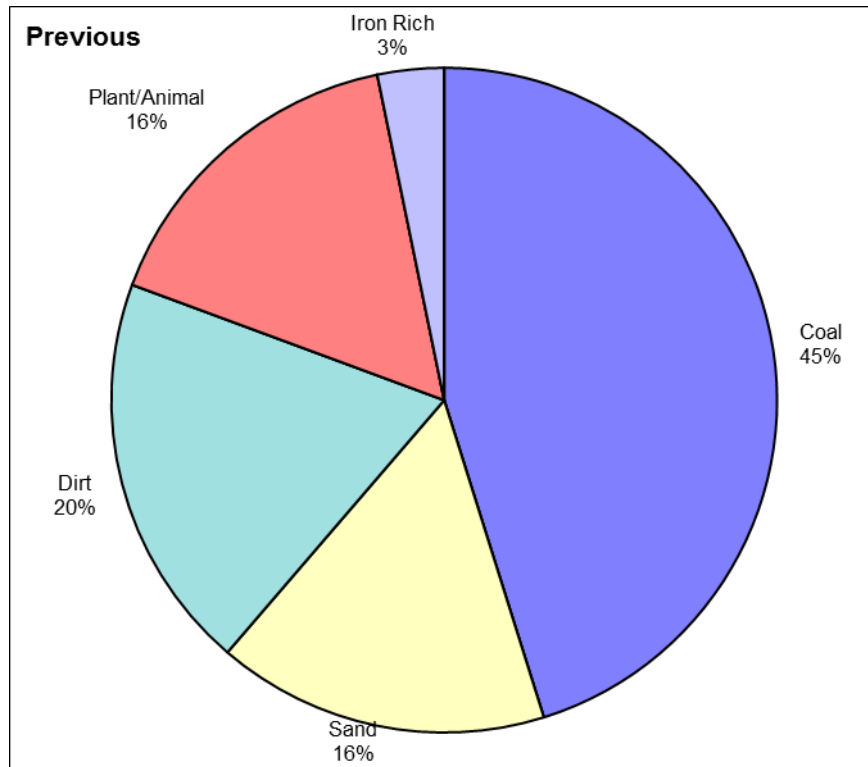
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	33	98	13	100.0	0	0
Previous	37	94	12	92.1	0	0
Change	-4	Decrease		-11%		

## Deposit Gauge Analysis Report 2, Llygad Yr Haul, Glynneath Comparison of Fallout Composition

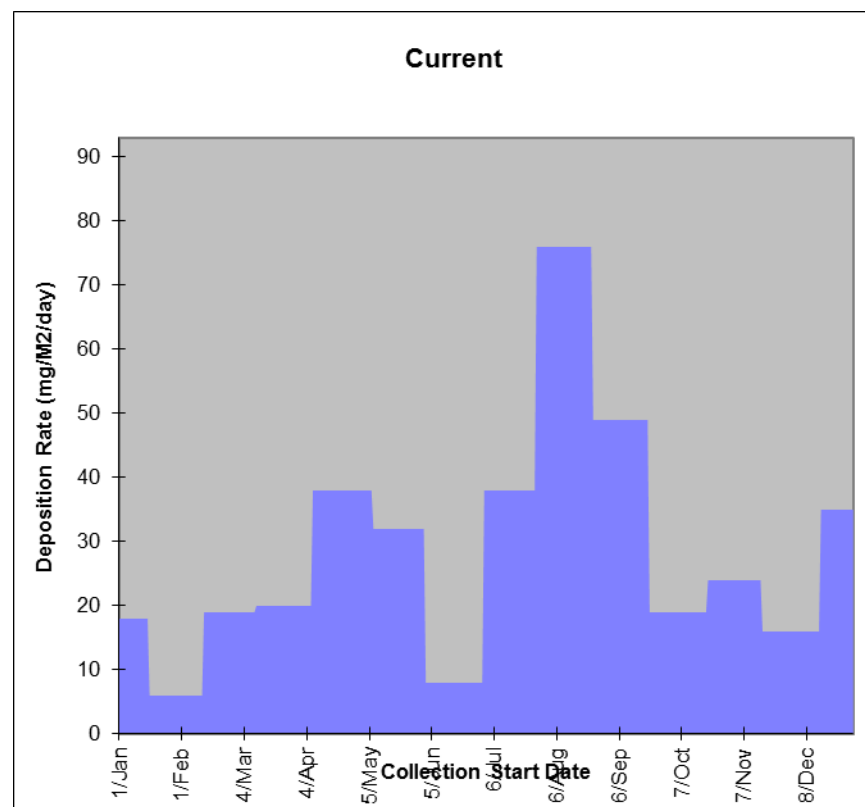
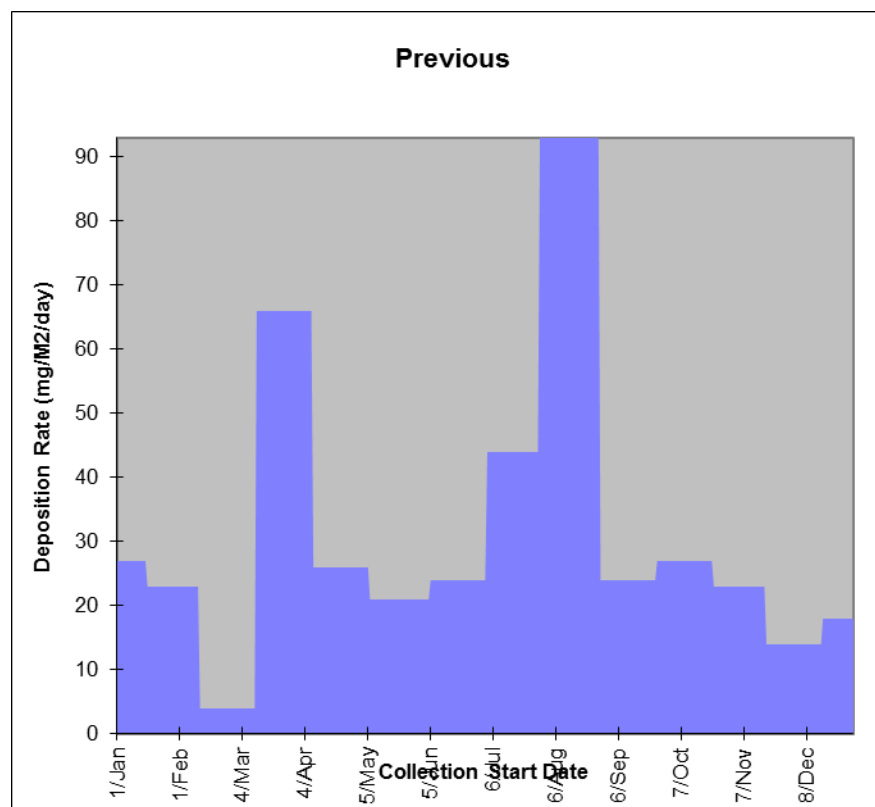
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	11	0	6	7	0	4	0	1	0
	Previous	14	0	5	6	0	5	0	1	0

## Deposit Gauge Analysis Report 2, Llygad Yr Haul, Glynneath Comparison of Fallout Rate with Time

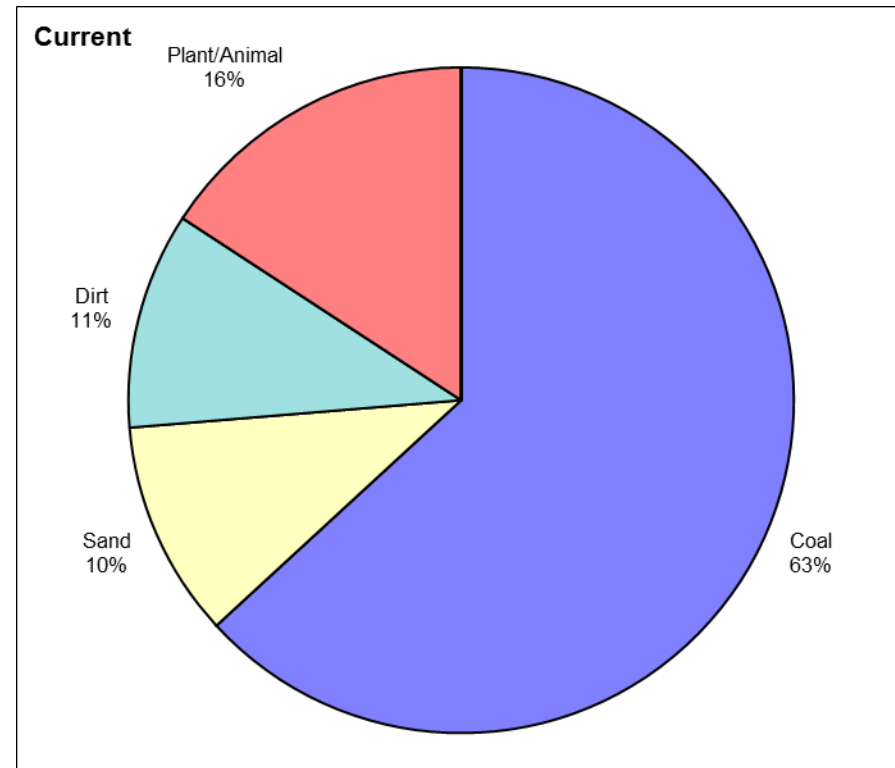
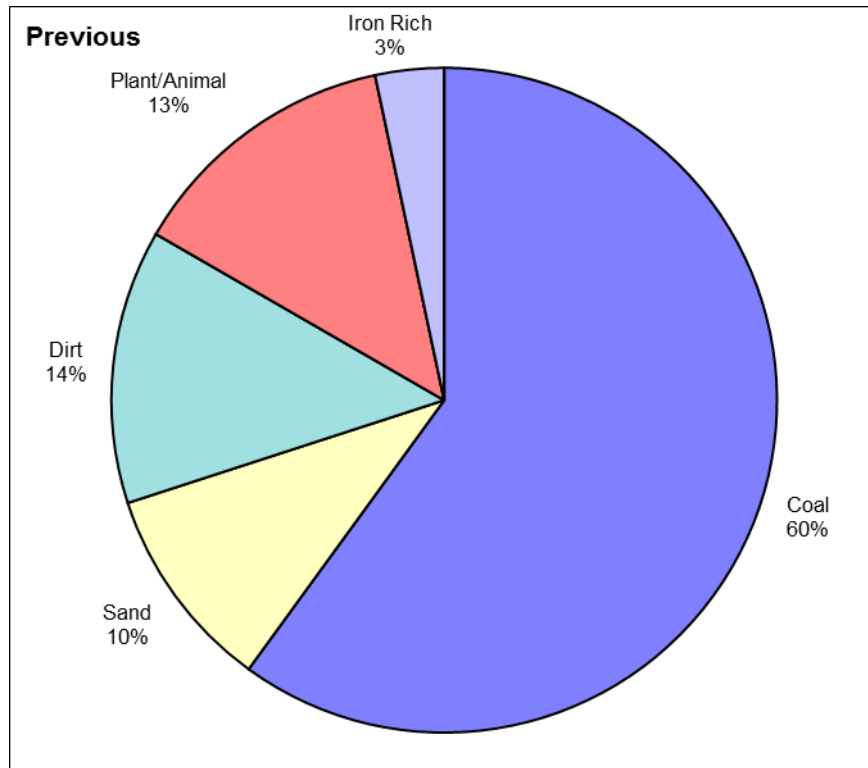
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	29	76	13	100.0	0	0
Previous	32	93	13	100.0	0	0
Change	-3	Decrease		-9%		

## Deposit Gauge Analysis Report 11, Wembley Avenue, Onllwyn Comparison of Fallout Composition

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

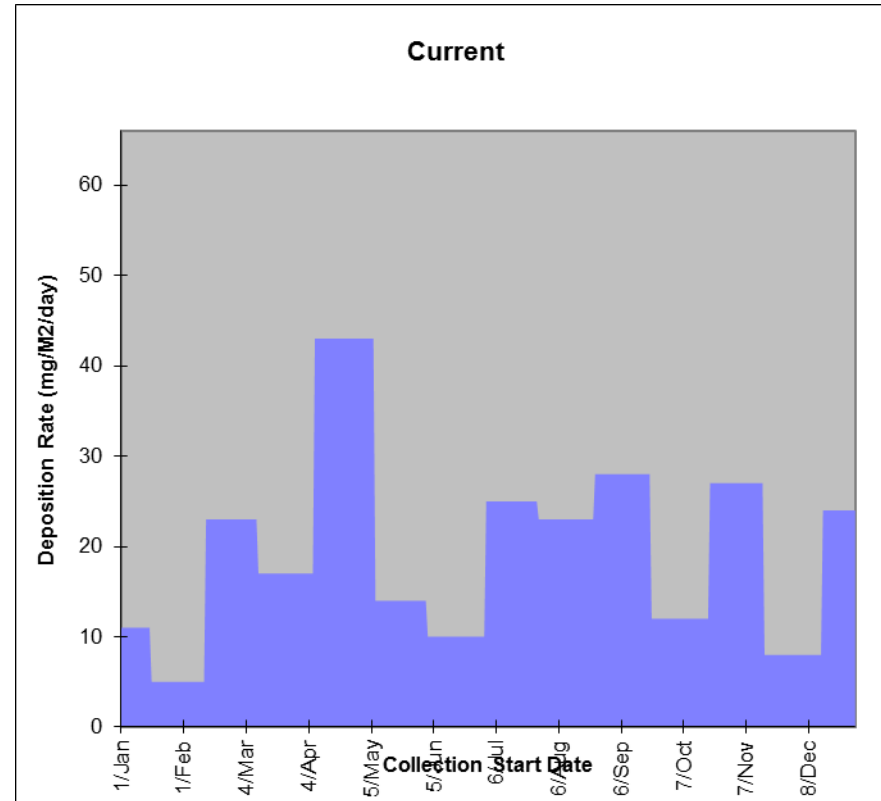
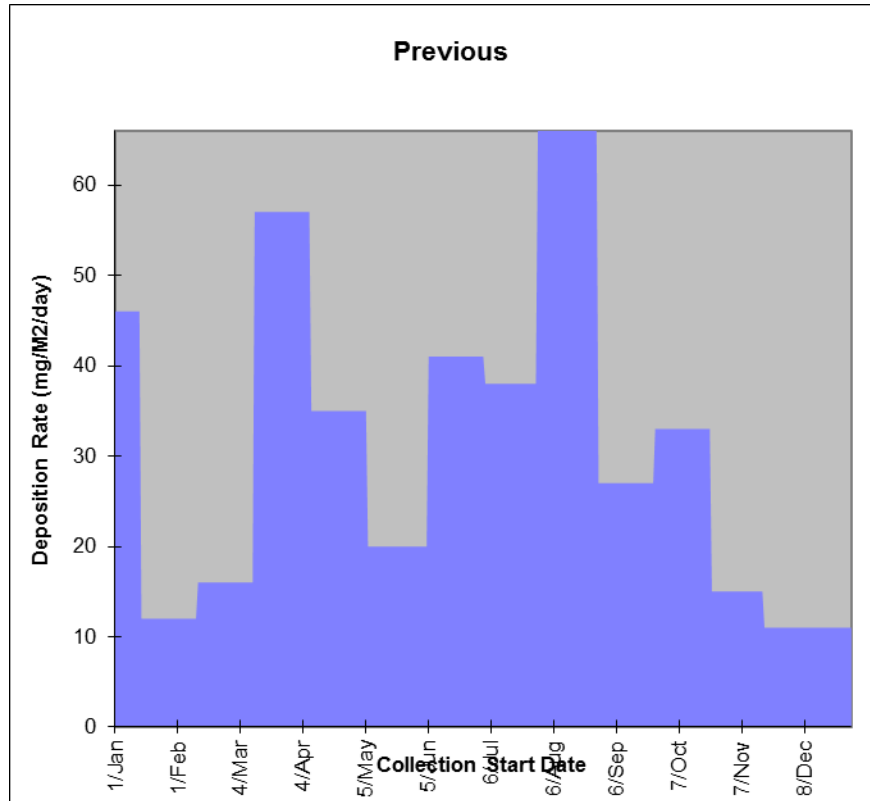


Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m <sup>2</sup> /day)	Current	12	0	2	2	0	3	0	0	0
	Previous	18	0	3	4	0	4	0	1	0

Figure 2.38 Onllwyn fallout rates

## Deposit Gauge Analysis Report 11, Wembley Avenue, Onllwyn Comparison of Fallout Rate with Time

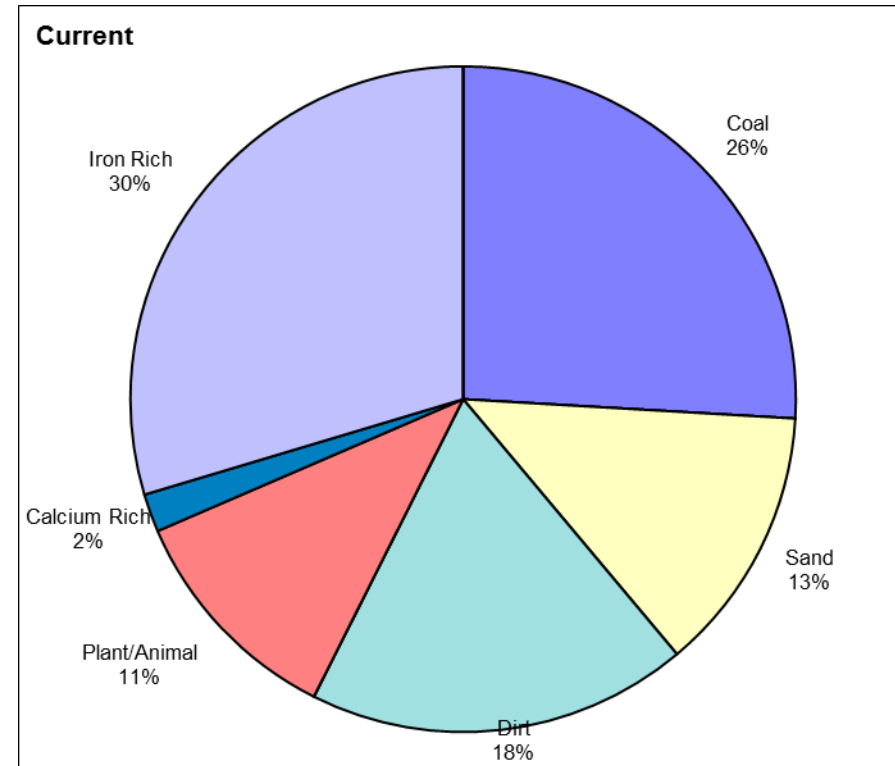
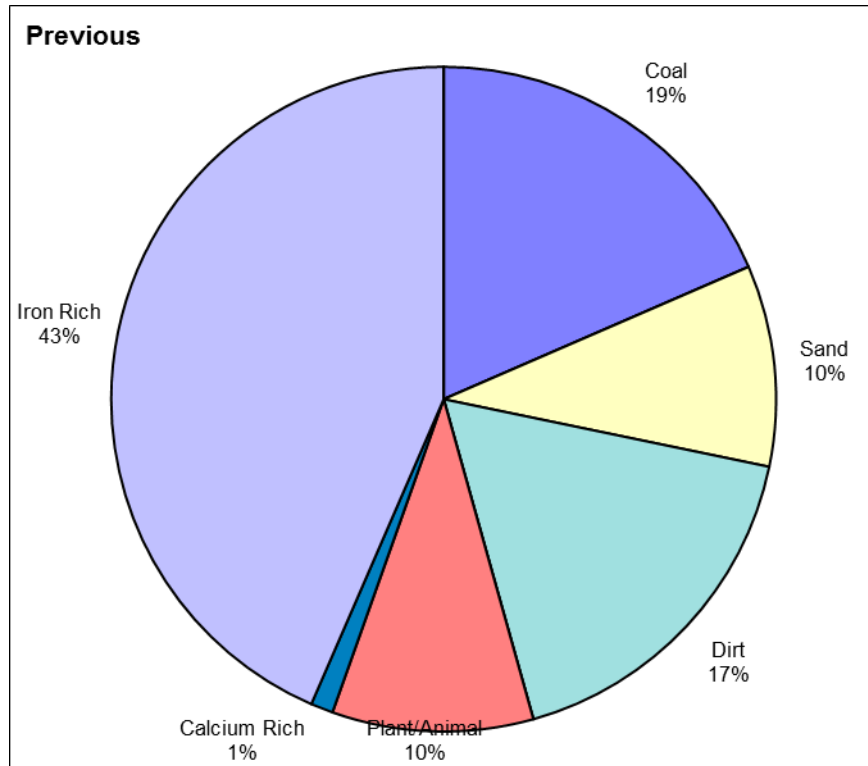
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	19	43	13	100.0	0	0
Previous	31	66	13	100.0	0	0
Change	-12	Decrease		-39%		

## Deposit Gauge Analysis Report Little Warren, Port Talbot Comparison of Fallout Composition

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

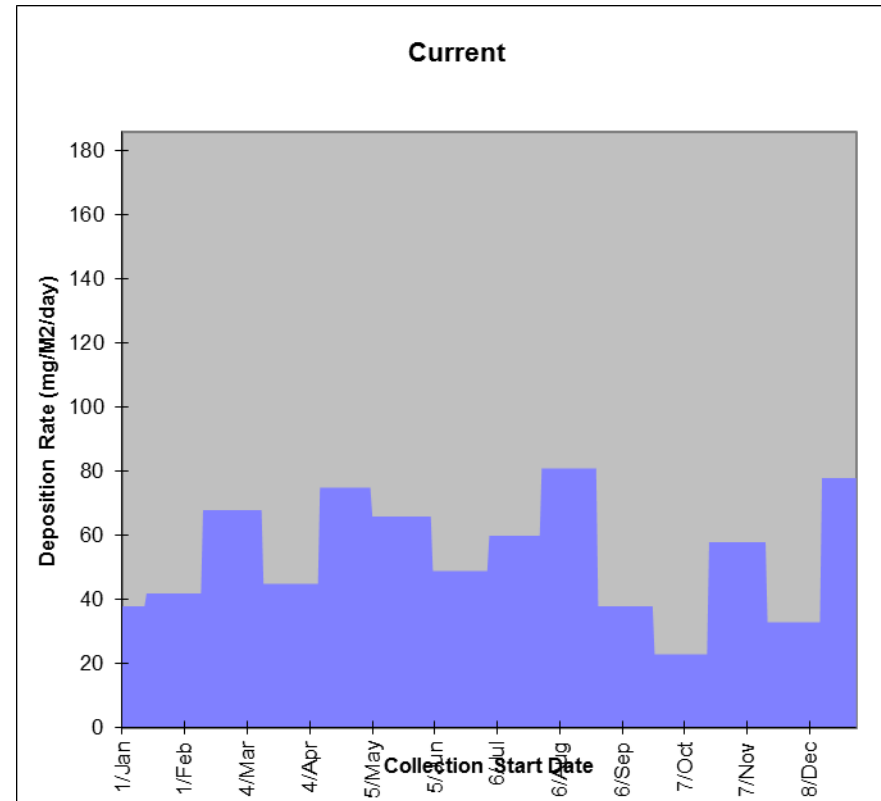
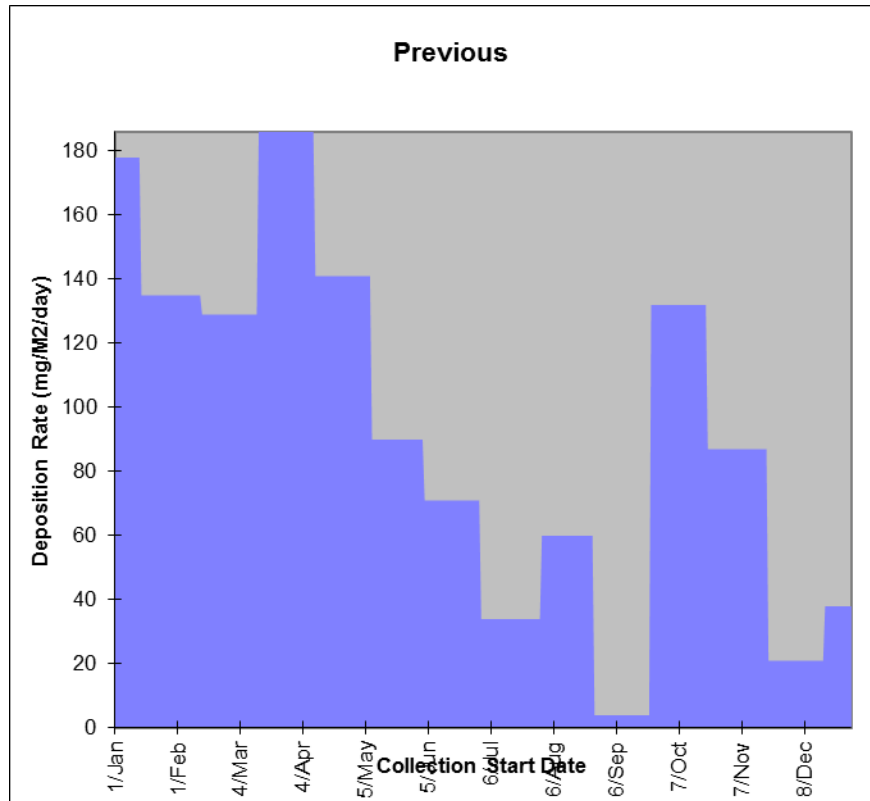


Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	14	0	7	10	0	6	1	16	0
	Previous	17	0	9	16	0	9	1	40	0



## Deposit Gauge Analysis Report Little Warren, Port Talbot Comparison of Fallout Rate with Time

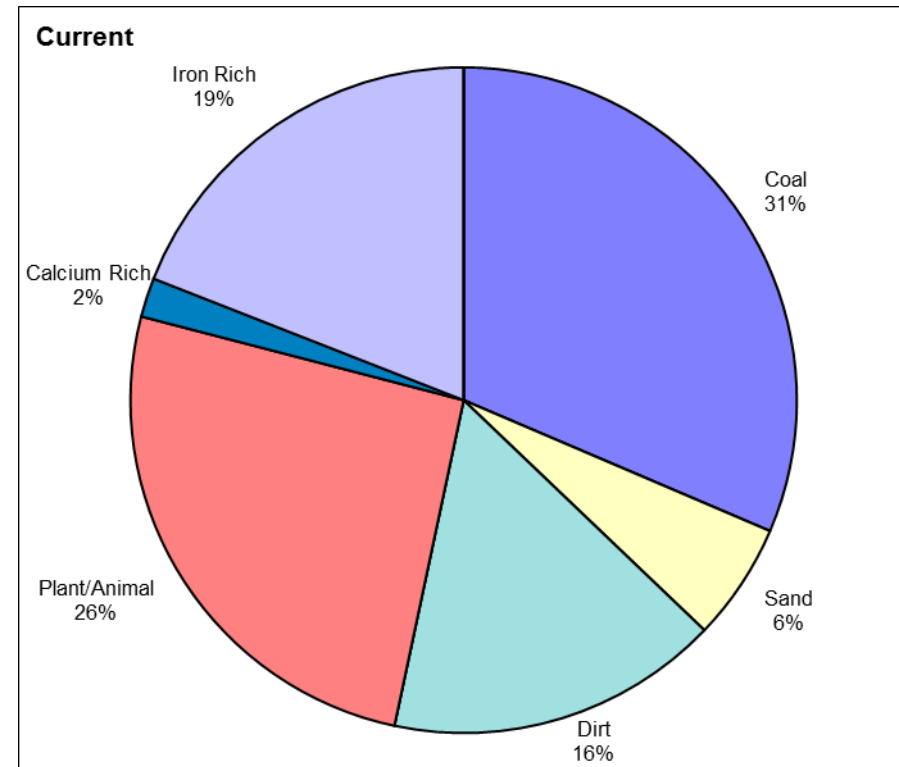
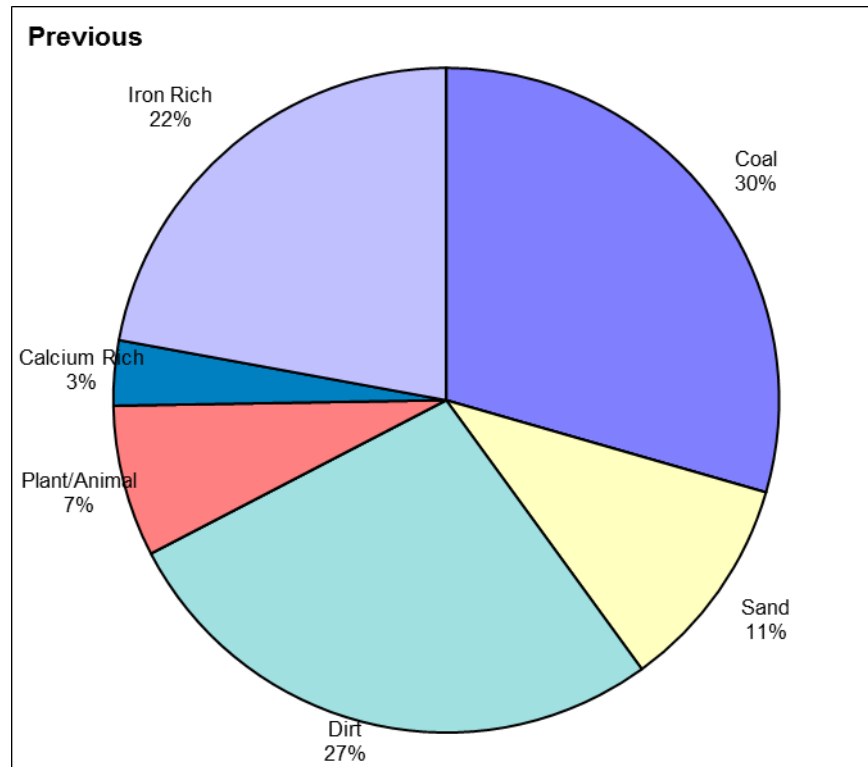
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	92	186	13	100.0	28	0
Previous	65	178	13	100.0	0	0
Change	27	Increase 42%				

## Deposit Gauge Analysis Report Dyffryn School, Bertha Road, Port Talbot Comparison of Fallout Rate with Time

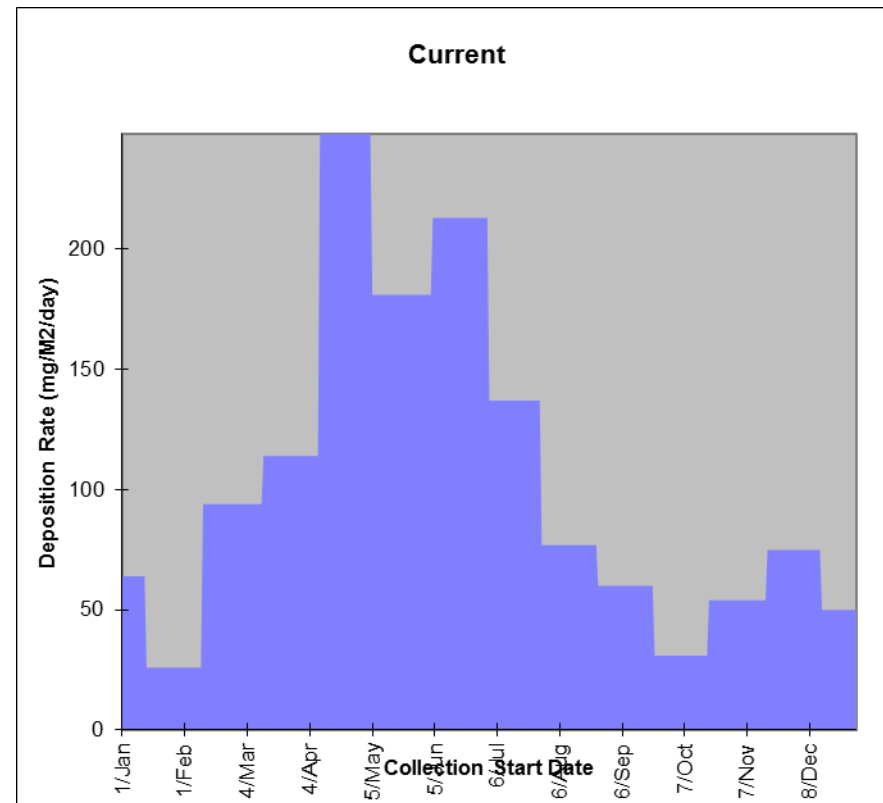
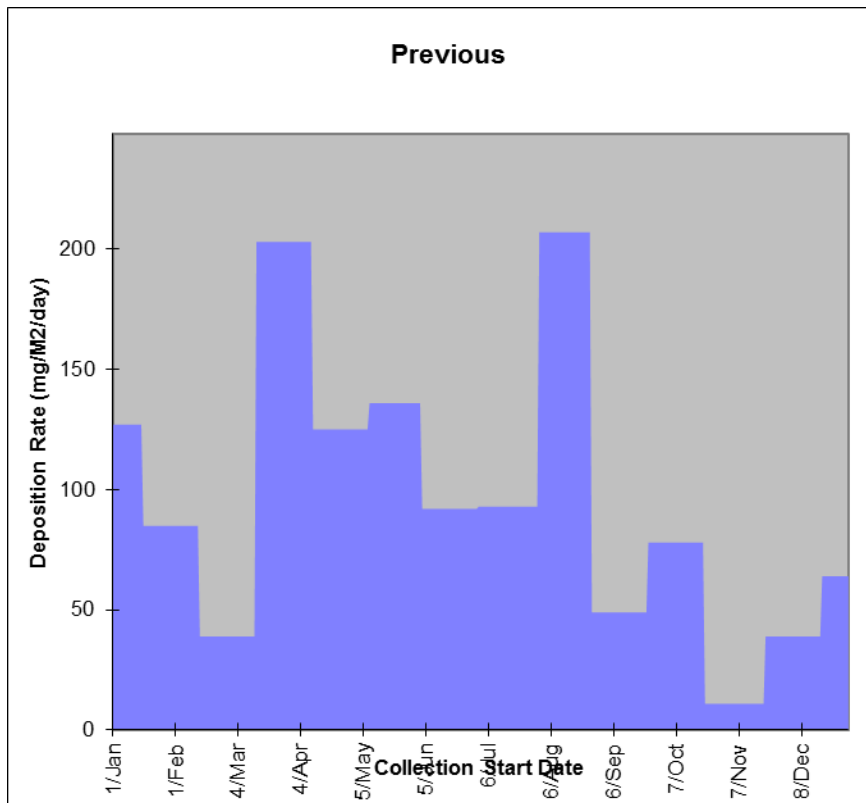
Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	28	0	10	26	0	7	3	21	0
	Previous	24	0	15	31	0	14	5	17	0

## Deposit Gauge Analysis Report Dyffryn School, Bertha Road, Port Talbot Comparison of Fallout Rate with Time

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

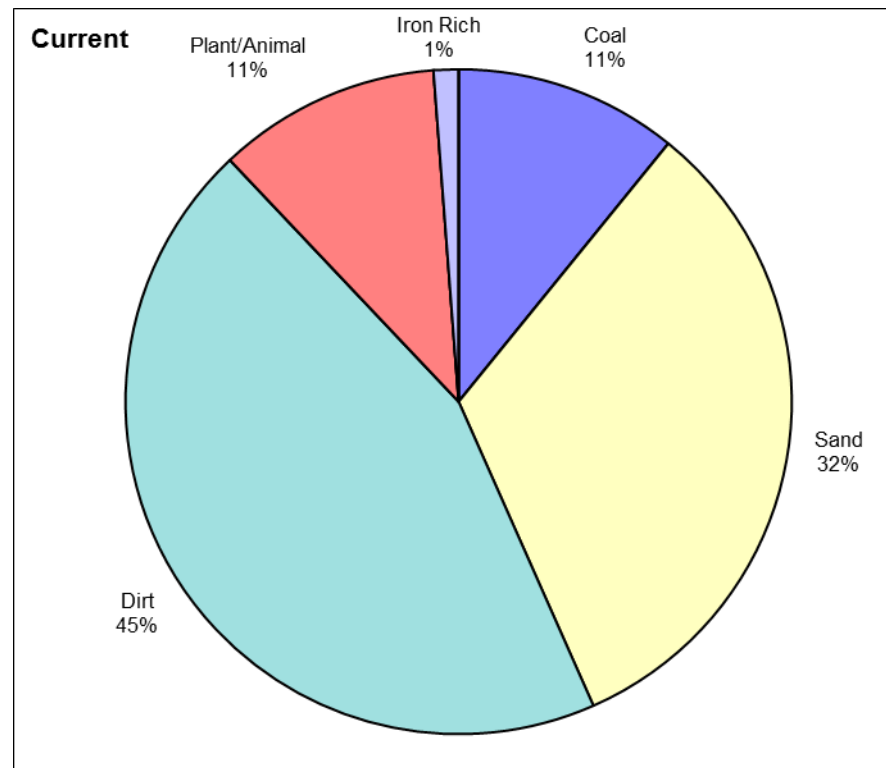
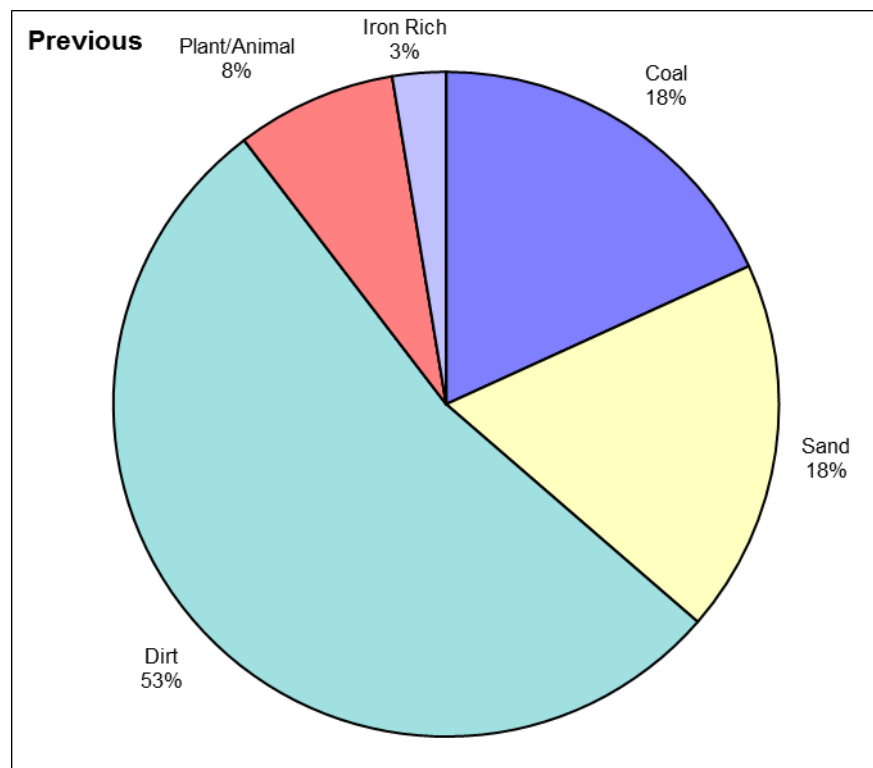


Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	104	248	13	100.0	30	54
Previous	95	207	13	100.0	0	54
Change	9	Increase				9%

## Deposit Gauge Analysis Report Cwmllynfell

### Comparison of Fallout Rate with Time

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14

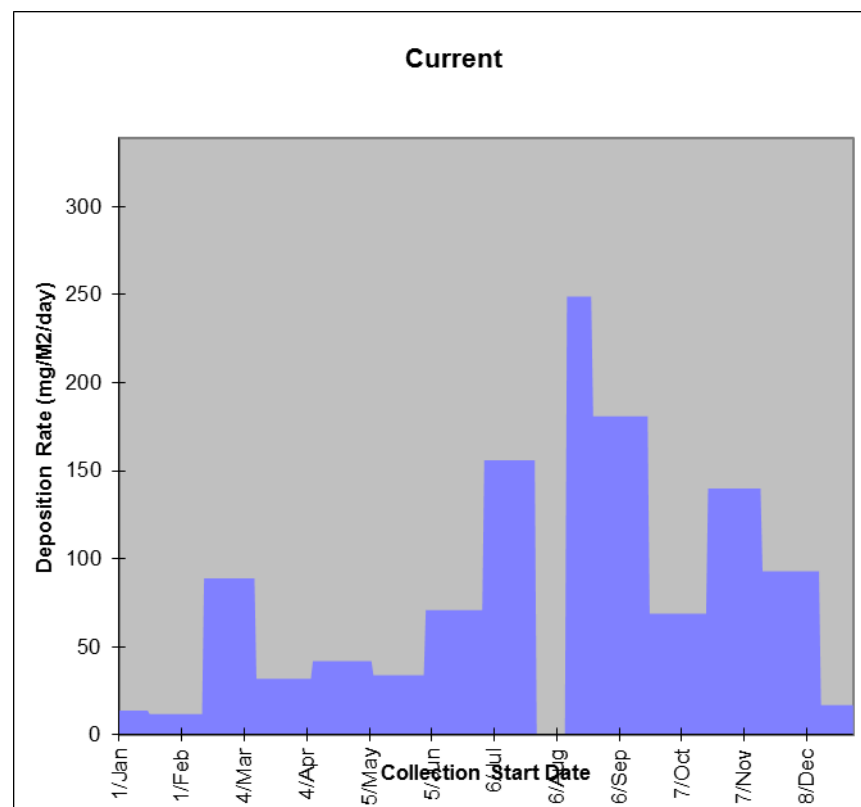
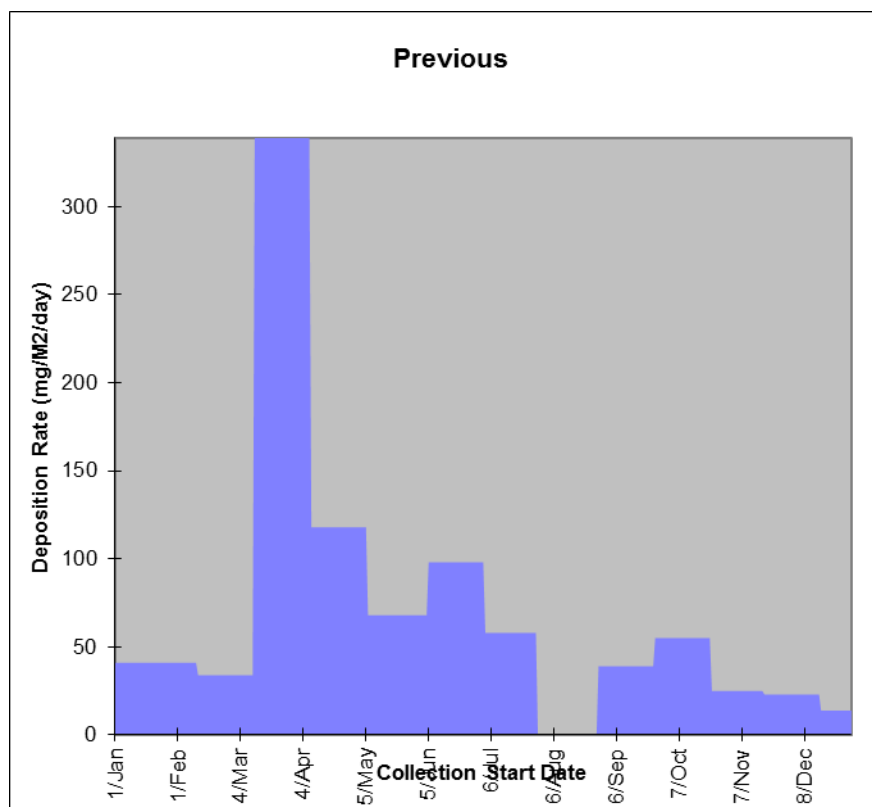


Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	9	0	27	37	0	9	0	1	0
	Previous	14	0	14	41	0	6	0	2	0

# Deposit Gauge Analysis Report Cwmllynfell

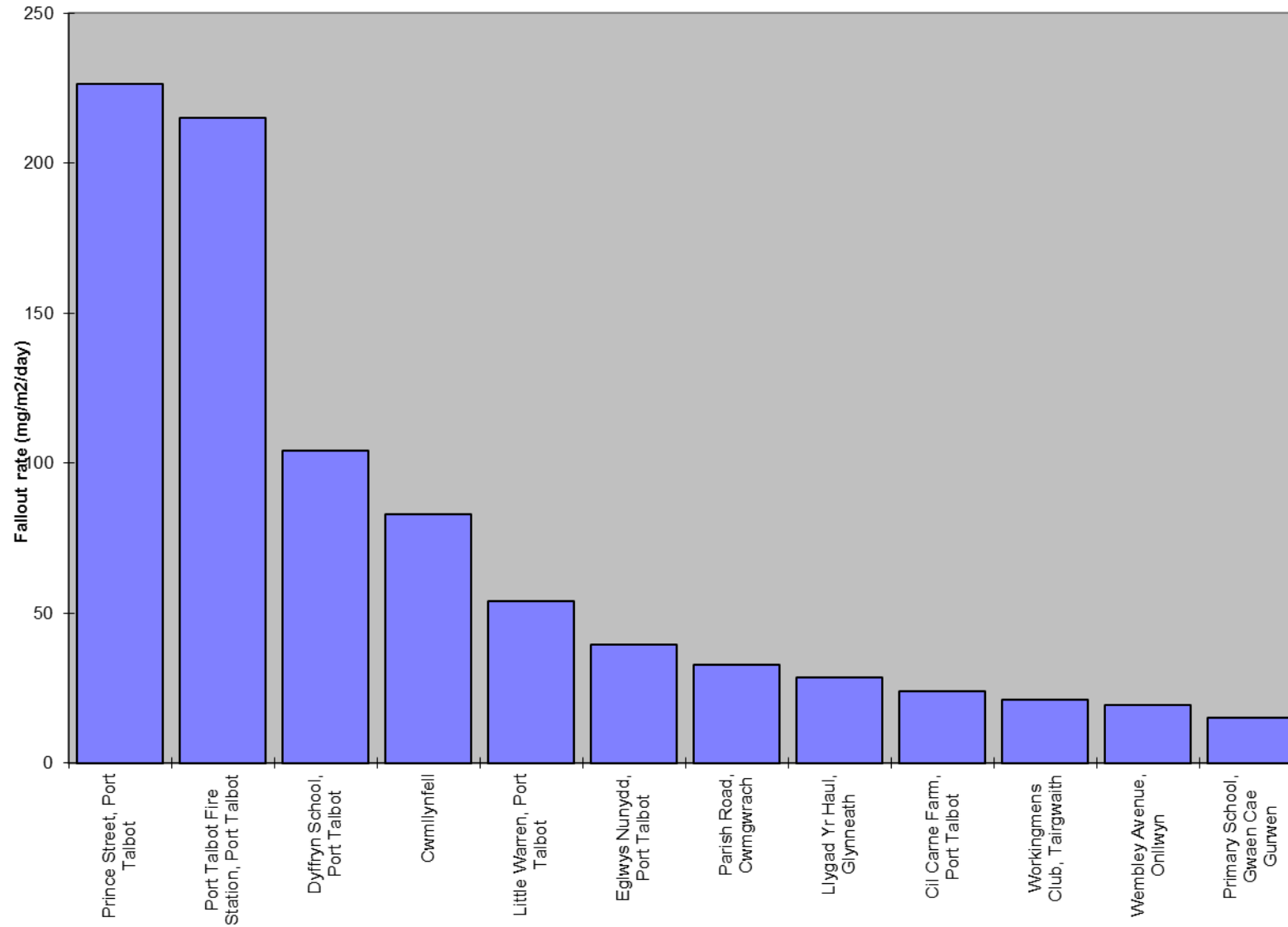
## Comparison of Fallout Rate with Time

Current Period = 01-Jan-15 to 31-Dec-15  
 Previous Period = 01-Jan-14 to 31-Dec-14



Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
<b>Current</b>	77	339	12	91.8	0	28
<b>Previous</b>	126	259	13	100.0	21	58
<b>Change</b>	-49	Decrease		-39%		

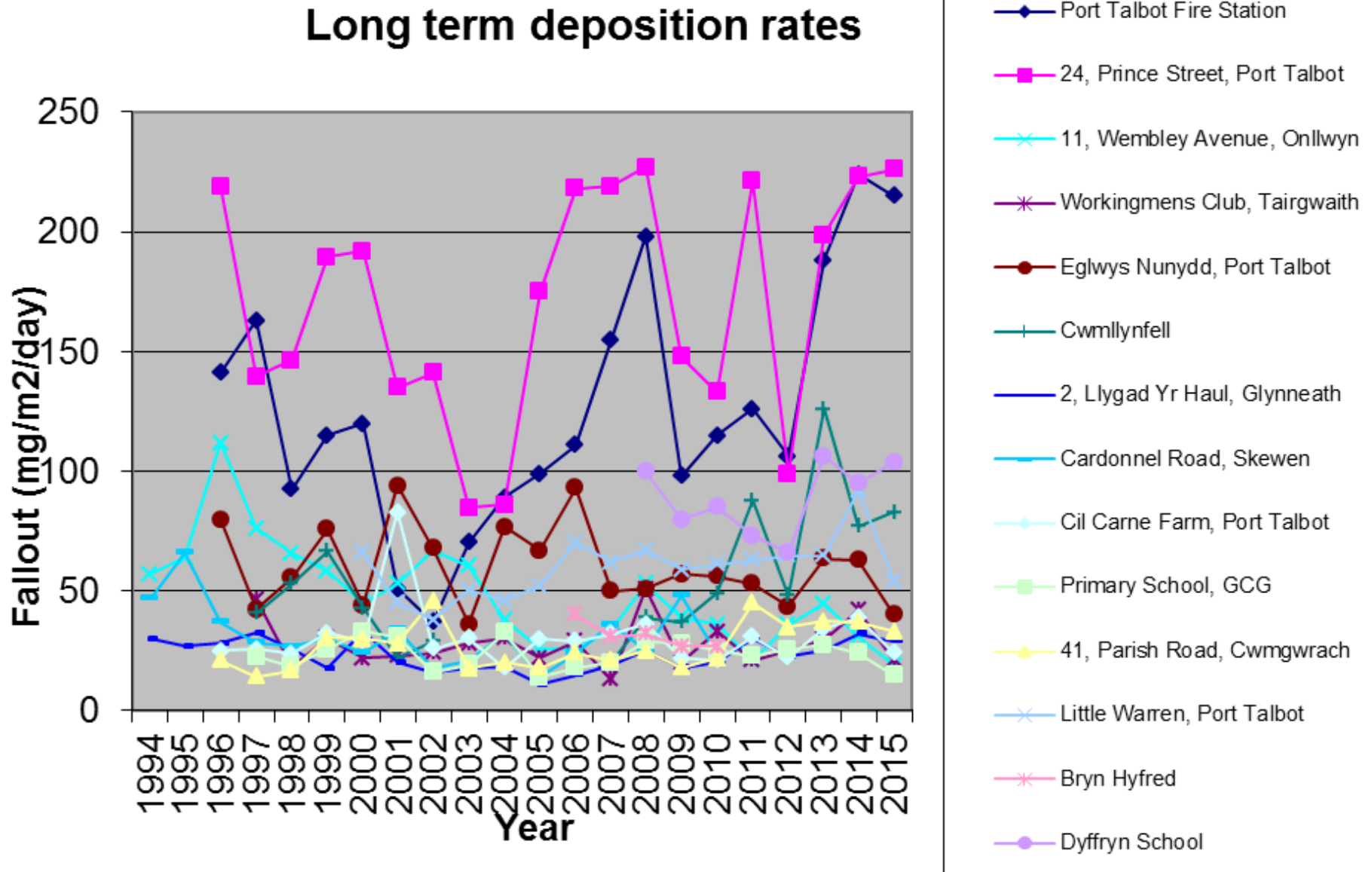
Figure 2.45 Comparison of average fallout rates, 2015



**Table 2.16 - Sites ranked by average fallout level (mg/m<sup>2</sup>/day) 2015**

Site Name	Fallout Level (mg/M2/day)		200 mg/M2/day 'Nuisance Limit'	
	Average	Maximum	Days within 10% of	Days Exceeding
Prince Street, Port Talbot	226	482	46	147
Port Talbot Fire Station, Port Talbot	215	459	30	183
Dyffryn School, Port Talbot	104	248	30	54
Cwmllynfell	83	249	28	13
Little Warren, Port Talbot	54	81	0	0
Eglwys Nunydd, Port Talbot	40	75	0	0
Parish Road, Cwmgwrach	33	98	0	0
Llygad Yr Haul, Glynneath	29	76	0	0
Cil Carne Farm, Port Talbot	24	40	0	0
Workingmens Club, Tairgwaith	21	32	0	0
Wembley Avenue, Onllwyn	19	43	0	0
Primary School, Gwaen Cae Gurwen	15	27	0	0

Figure 2.46 Long term deposition rates





**Neath Port Talbot County Borough Council**

**Table 2.17 - Long term deposition rates**

Site Name	Fallout rate (mg/m <sup>2</sup> /day)																	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Port Talbot Fire Station	92	115	120	51	37	70	89	99	111	155	198	98	115	126	106	188	224	215
24, Prince Street, Port Talbot	146	189	192	135	141	85	86	175	218	219	227	148	133	221	99	199	223	226
11, Wembley Avenue, Onllwyn	66	58	45	53	67	60	38	26	26	34	53	39	36	21	36	45	31	19
Workingmens Club, Tairgwaith	18	30	22	23	24	28	30	22	29	13	51	20	33	21	25	30	42	21
Eglwys Nunydd, Port Talbot	55	76	44	94	68	36	77	67	93	50	51	57	56	53	44	64	63	40
Cwmllynfell	53	67	43	22	29					20	39	37	49	88	48	126	77	83
2, Llygad Yr Haul, Glynneath	26	18	33	20	16	18	19	11	15	19	25	18	20	30	23	25	32	29
Cardonnel Road, Skewen	27	30	24	34	18	21	32	14	24	36	25	48	24		24			
Cil Carne Farm, Port Talbot	24	32	29	83	26	30	18	30	29	32	36	22	21	31	22	34	39	24
Primary School, GCG	19	26	33	31	16	19	33	14	18	20	29	28	25	23	26	28	24	15
41, Parish Road, Cwmgwrach	17	31	30	28	46	18	20	18	24	21	25	18	22	45	35	37	37	33
Little Warren, Port Talbot			66	45	38	50	46	52	70	62	67	59	61	63	65	65	92	54
Bryn Hyfred									40	31	32	27	27					
Dyffryn School											100	80	85	73	66	106	95	104

### 2.3.2 Summary of Compliance with AQS Objectives

Neath Port Talbot County Borough Council has examined the results from monitoring in the Taibach Margam area.

Concentrations within the AQMA exceeded the short-term air quality objective for PM10 at Port Talbot Fire Station and the AQMA should remain.

Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

Neath Port Talbot County Borough Council has measured concentrations of nitrogen dioxide marginally above the annual mean objective at one location. A Detailed Assessment concluded that it could not be stated with reasonable certainty that the air quality objective was not being achieved. Consequently it was considered that an AQMA should not be declared at this time.

### **3 New Local Developments**

#### **3.1 Road Traffic Sources**

No new sources have been identified.

#### **3.2 Other Transport Sources**

No new sources have been identified.

#### **3.3 Industrial Sources**

No new sources have been identified.

#### **3.4 Commercial and Domestic Sources**

No new sources have been identified.

#### **3.5 New Developments with Fugitive or Uncontrolled Sources**

No new sources have been identified.

Neath Port Talbot County Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Neath Port Talbot County Borough Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

## 4 Local / Regional Air Quality Strategy

The Council's air quality strategy (AirWise) was first drawn up in 2000 and was subsequently revised in 2006 and 2013. The latest version of the document can be found here:

<http://www.npt.gov.uk/default.aspx?page=4055>

Progress being taken towards implementation of the strategy is contained within strategy document.

It is proposed to next review the strategy in 2019.

## 5 Planning Applications

35 planning applications were referred for comments on grounds of air quality. The majority were considered to have negligible impact. Details regarding other sites are shown below.

Application number P2015/0641 related to the demolition and redevelopment of Port Talbot Fire Station, which lies within the Taibach Margam AQMA for PM<sub>10</sub>. It was recommended that the applicant follow the demolition guidance from the IAQM and produce a dust management plan. Permission had not been granted at the time of writing.

Application number P2015/1012 dealt with proposed works at Margam Opencast Coal site. It was recommended that a screening assessment be carried out in accordance with the IAQM guidance. Planning permission granted.

Application number P2015/0975 concerned an 8 MW biomass boiler at the Intertissue Plant at Briton Ferry. Dispersion modelling was carried out to assess the impact at residential receptors. The dispersion modelling showed that the impact upon air quality at receptors was not significant. Planning permission granted.

Application number P2015/0513 related to a short term operating reserve (STOR) power station at Afan Way. Dispersion modelling has been undertaken to predict the impacts associated with stack emissions from the gas engines at the Site. There was considered to be no realistic potential for a breach of the air quality objectives. Planning permission granted.

Application number P2015/0691 dealt with a 20 MW gas power station at Christchurch Road, Port Talbot. Dispersion modelling showed that no air quality objectives would be breached as a consequence of either of the two proposed options for generators. Planning permission granted.

Application number P2015/0349 concerned a small scale electricity generation plant at Edward Works, Llandarcy. Dispersion modelling was used to assess the operational air quality impact from two separate proposed plant scenarios. In both cases, no air quality objectives were breached and the impacts were considered to be negligible. Planning permission granted.

## 6 Air Quality Planning Policies

The Council adopted the LDP on 27<sup>th</sup> January 2016. The extract below captures all relevant policies in respect of air quality / pollution, namely:

- Strategic Policy SP16 – Environmental Protection;
- Policy EN8 – Pollution and Land Stability; and
- Policy EN9 – Developments in the Central Port Talbot Area.

The Council has now started the process of preparing a raft of Supplementary Planning Guidance (SPG), setting out more detailed topic or site specific guidance on the way in which the policies of the LDP will be applied in particular circumstances or areas. The 'Pollution' SPG has been identified as one of 5 key SPG that is currently being prepared. The SPG seeks to give information about pollution issues in Neath Port Talbot and sets out the relevant matters that will need to be taken into consideration when developments are being planned. In due course the Council will conduct a public / stakeholder consultation on the emerging SPG.

### LDP (2011-2026) Extract

#### Environmental Protection

##### 5.3.38 Strategic Policy SP16 Environmental Protection

#### **Policy SP16 Environmental Protection**

Air, water and ground quality and the environment generally will be protected and where feasible improved through the following measures:

1. Ensuring that proposals have no significant adverse effects on water, ground or air quality and do not significantly increase pollution levels;
2. Giving preference to the development of brownfield sites over greenfield sites where appropriate and deliverable;
3. Ensuring that developments do not increase the number of people exposed to significant levels of pollution.

**LDP Objectives: OB 2, OB 16 and OB 17**

**5.3.39** The quality of the environment and the basic natural needs that it provides for are of great importance for human health and well-being, with the potential to affect quality of life in fundamental ways. The legacy of past activities in the area, mainly relating to heavy industry, coupled with present day industry, transport and development pressures all have impacts on the environment which need to be taken into account and addressed where possible. Air quality, ground contamination and stability and the quality of water resources can all affect and be affected by development proposals in the Plan, together with levels of light pollution and noise levels. The Plan strategy is to protect and improve the environment as far as possible, and Policy SP16 sets out the approach that will be taken.

**5.3.40** In relation to environmental pollution, there is a wide range of control and permitting systems and regimes which developments and operations have to comply with that are separate from the Town and Country Planning system. These requirements cannot be duplicated in the Plan or in planning control, but have been taken into account in the development of Plan proposals and policies and will need to be reflected in planning decisions.

**5.3.41 Policy EN8 Pollution and Land Stability**

**Policy EN8 Pollution and Land Stability**

Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity or would expose people to unacceptable risk due to the following will not be permitted:

- Air pollution;
- Noise pollution;
- Light pollution;
- Contamination;
- Land instability;
- Water (including groundwater) pollution.

Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included to reduce the risk of harm to public health, biodiversity and/or local amenity to an acceptable level.

**5.3.42** Pollution of all types can cause significant damage to human health, biodiversity, quality of life and residential amenity and Policy EN8 is intended to ensure that developments will not exacerbate existing problems, cause new problems or result in more people being routinely exposed to unacceptable pollution levels of any type. The policy refers to unacceptable effects or risk, and the interpretation of this will depend on the type of pollution being considered and likely effects.

**5.3.43** In relation to air quality, objectives are set for a range of pollutants<sup>(23)</sup> and Neath Port Talbot's air quality is measured against these objectives at a range of sites across the County Borough. This monitoring has identified areas of concern in some central urban areas, with exceedances in the Margam / Taibach area leading to the declaration of an Air Quality Management Area (AQMA) in 2001.

**5.3.44** Development proposals that could potentially result in or contribute to breaches of any air quality objective will be required to show (through modelling exercises or other appropriate technical information, including taking into account cumulative impacts) that this will not occur. While the provisions would apply throughout the County Borough, developments in the vicinity of the AQMA that would result in additional direct emissions to the atmosphere or could have indirect effects such as through generating significant additional traffic are an example of such a proposal. If this requirement cannot be met, either with or without mitigation measures, the proposal will not be acceptable under the terms of the policy.

## Neath Port Talbot County Borough Council

**5.3.45** In the central Port Talbot area in particular, operations during the construction phase of developments have the potential to result in exceedances of air quality objectives relating to particulates. This may depend on local weather or atmospheric conditions and the type of operations being undertaken. Policy EN9 sets out specific requirements for development in the central Port Talbot area and further information on this topic will be provided in Supplementary Planning Guidance.

**5.3.46** In relation to noise, potentially noisy proposals should not be located close to sensitive uses (such as hospitals, schools and housing) and new noise-sensitive developments should not be located near to existing noisy uses (including industry and existing or proposed transport infrastructure) unless it can be shown that adverse effects can be dealt with through mitigation measures incorporated into the design. Where noise levels are likely to be a significant issue, developers may be required to provide information to show that no nuisance is likely to be caused through increased noise levels at sensitive locations if the development proceeds. Policy EN10 sets out policy relating to designated Quiet Areas.

**5.3.47** Light pollution can be an issue where it has potential adverse effects on the natural or historic environment, on people's health and amenity or on wildlife and habitats. These concerns will need to be balanced against the need to enhance safety and security and to enable sport, recreation and other activities to take place. Where lighting proposals have the potential to cause adverse effects, mitigation measures will be required to ensure that their impact is minimised.

**5.3.48** Some of the Plan's brownfield allocations and proposals incorporate land that is contaminated due to past industrial uses. In many cases remediation measures have been or are being undertaken as part of the development process. In other cases, where contamination is likely or is found to be present, information will be required to show the level and type of contamination present, and proposals for remediation and mitigation to show that no adverse effects will be caused at any stage of development within or outside the site. In addition, developments and operations involving scrub clearance and soil removal off-site can have implications for the spread of invasive species, some of which (such as Japanese Knotweed and Himalayan Balsam) are subject to the Natural Resources Wales' licence control measures as part of the Environmental Protection Act (1990).

**5.3.49** In cases where there is evidence that a site may be unstable, or that development may cause stability issues, developers may be required to undertake specialist investigation or assessment to show that the development can proceed safely and without having adverse effects. However, in such cases the responsibility and subsequent liability for the safe development and secure occupancy of the site rests with the developer and/or landowner.

**5.3.50** Developments will be expected to minimise any adverse effects on water quality, and additional information may be required in cases where there may be issues relating to existing poor water quality or a development has the potential to cause pollution. Developments will be required to ensure that no pollution is caused through drainage.



**5.3.51 Policy EN9 Developments in the Central Port Talbot Area**

**Policy EN9 Developments in the Central Port Talbot Area**

Developments in the central Port Talbot area that could result in breaches of air quality objectives during their construction phase, will be required to be undertaken in accordance with a Construction Management Plan submitted as part of the planning process and agreed by the Council.

**5.3.52** The construction of major developments in the central Port Talbot Area, including (but not limited to) those within the Harbourside SRA, may potentially result in breaches of air quality objectives in the surrounding area (including within the Margam/Taibach AQMA). The main risk relates to an increase in atmospheric particulates resulting from construction activities. Any such developments will consequently be required to submit a Construction Management Plan detailing measures to be taken to avoid this possibility. The Construction Management Plan should identify the construction operations that could cause air quality impacts and measures to prevent such impacts arising. These may include measures to minimise as far as possible the generation of dust, the modification or phasing of the more polluting activities and the suspension of any polluting activities at times of particular air pollution risk. Further details concerning these requirements will be set out in Supplementary Planning Guidance.

## **7 Local Transport Plans and Strategies**

The Regional Transport Plan is the result of joint working between the four local authorities (Carmarthenshire, Neath Port Talbot, Swansea and Pembrokeshire) in south west Wales. It replaces the individual local transport plans previously adopted by the 4 councils. As well as acting as a bidding document for major transport schemes it will shape transport policy in the region for the period 2015 -2020 and beyond. Details can be found on the following web page:

<http://www.npt.gov.uk/default.aspx?page=2808>

## 8 Implementation of Action Plans

The Air Quality Action Plan was reviewed and updated in 2012. The updated document can be found here <http://www.npt.gov.uk/pdf/aqap2012.pdf>.

Progress made with the action plan measures during 2015 is shown in the following table.

Table 9.1 - Action Plan Progress

No.	Measure	Progress in Last 12 Months
A1	Multi agency interaction	<p>7 X PM<sub>10</sub> Data team meetings during 2015. 1 X PM<sub>10</sub> Regulator's meeting. 1 X PM<sub>10</sub> Steering Group meeting. Monitoring results were discussed as were plans for further work including studies by King's College and Birmingham University.</p> <p>All pollution and weather measurements continue and information is shared with partners on request. Our industrial alerts system is used by operators on the steelworks site to try to prevent exceedance days from happening.</p> <p>The LSB air quality project is now complete.</p>
A2	Dust reduction programme at Tata site	<p>Permits for Tata Steel, Harco and Cambrian Stone reviewed to implement BATc requirements by mid-March and the requirements of IED. A number of limits have been tightened to reduce the releases from the site to meet BATc.</p> <p><b>Steel &amp; Slab.</b>                      Slop detection/Prediction camera.                      Increased slag pot fleet purchased.                      Improved operational slag pot tipping procedures.                      Improved slag pot design providing greater life span.                      Slag pit re-organisation reducing lift off.                      Mist cannons.                      Installation of high speed doors at hot metal bay.                      Optimisation of extraction hood use.                      Improvements to extraction fans and current hood design.                      Extended hard standing road surfacing.                      Installation of wheel wash unit.                      Traffic management scheme in place.                      BOS plant extraction improvements ongoing to meet the BATc requirements.</p> <p><b>Raw materials</b>                      In haul road upgrade.                      Installation of two wheel wash units.                      Installation of automatic stockyard dust suppression system.</p>

No.	Measure	Progress in Last 12 Months
		<p>Stockyard surfacing continued during this year (2015/6) but postponed during the sale process.</p> <p><b>Blending plant</b>                      24hr monitoring booth in full operation – accessing on-site and off-site air monitors .                      Internal triggers placed on operational parameters.                      Operational blending procedures improved to reduce lift off.                      Up-skilling library created for PM10 events.                      Revert storage area upgraded.                      Water sprays installed in reverts area.                      Conveyors 814 and 824 upgraded, including new sheeting and bridge sections.                      4 x wheel washes installed.                      New bunkers installed, with 100% water spray coverage.                      Remote boom height operation of stackers.                      Surfacing of the sinter and lump ore yards complete.</p> <p><b>Blast Furnace No 4</b>                      New downcomer, dirty gas system and dust catcher.                      New stoves &amp; Blast system.                      New stockhouse with integrated dust filtration extraction plant.                      Improvements to ducts &amp; hoods &amp; closing of casthouse building openings to air.                      Improvements to clay guns, drills &amp; main trough cover with manipulators.</p> <p><b>Sinter plant</b>                      Main stack waste gas system improvements ongoing to meet the BATc requirements.                      Sinter cooler operation improved to ensure consistent sinter temperature and hence down steam dust control.                      Main stack limits reduced to implement BATc for the main stack.</p> <p><b>Coke ovens</b>                      Fugitive release limits from the coke ovens reduced to implement BATc for door, oven and associated equipment leakage.                      Ongoing improvements to the connections between the coke ovens and the gas collection system to reduce visible leakage.                      New methods introduced for monitoring fugitive releases with more frequent monitoring and therefore performance data.</p>
A3	Planning Policies	LDP issued.

**Neath Port Talbot County Borough Council**

No.	Measure	Progress in Last 12 Months
A4	Tree Planting	Urban Trees Project is now complete.
A5	Transport infrastructure (PDR)	Project now complete.
A6	Train haulage emissions	There were no complaints about dusty trains in Port Talbot during 2015.
A7	NPT permitting in vicinity of steel works	NPT continues to regulate Civil & Marine Slag Cement in accordance with the permit and BAT.
A8	Travel Plans	NPT CBC are currently in the process of using data from their site audits and staff surveys to inform their annual Travel Plan review, reflecting progress made towards sustainable travel planning. NPT Homes are also reviewing their Travel Plan. With the considerable development in the Baglan Bay area, a Travel Forum group is in the process of being set up where representatives from businesses and organisations from the area can get together to share travel plans and good practice with a view to encouraging more sustainable and active travel in the area.
A9	School Travel Plans	A total of 55 schools in the County Borough have travel plans, although this figure did not increase in 2015.
A10	Domestic Bonfires	Engagement with the public on air quality issues continues.
A11	Industrial Fires	Natural Resources Wales keeps a list of permitted sites with combustible wastes, which are risk categorised. NRW also investigates illegal sites. NPTCBC has taken proactive measures together with other agencies to prevent tyre fires.
A12	Hill Fires	A leaflet on controlled burning has been developed for farmers. This has been reproduced in the NFU Wales October news magazine. The leaflet has also been sent to FUW members via a mailing list.  A fire safety education program is in place with a named officer for the Neath Port Talbot area.
A13	Increased street sweeping	The service is still available, but there has been no cause to call upon it in 2015.
A14	Public and industrial air alerts	The industrial air alerts system is used by approximately 145 subscribers. The trial of the public system is complete and there are currently no plans to continue with the service.

## **9 Conclusions and Proposed Actions**

### **9.1 Conclusions from New Monitoring Data**

Neath Port Talbot County Borough Council has measured concentrations of nitrogen dioxide marginally above the annual mean objective at one location. A Detailed Assessment concluded that it could not be stated with reasonable certainty that the air quality objective was not being achieved. Consequently it was considered that an AQMA should not be declared at this time. A Detailed Assessment shall be required in respect of nitrogen dioxide for the calendar year of 2016.

The long-term Air Quality Objective for PM<sub>10</sub> was not breached in Port Talbot. However, the short-term average was breached at Port Talbot Fire Station, for the first time since 2007. The Taibach/Margam AQMA will continue to remain in force.

There were no exceedances of Air Quality Objectives for sulphur dioxide (SO<sub>2</sub>), lead (Pb) or carbon monoxide (CO).

### **9.2 Conclusions relating to New Local Developments**

No new local developments have been identified that require more detailed consideration in the next Updating and Screening Assessment.

### **9.3 Other Conclusions**

Fine particulates of less than 2.5 microns in size (PM<sub>2.5</sub>) easily complied with the EU Target which is to be complied with by 2015.

Ozone is not covered by Local Air Quality Management because trans-boundary pollution can have a significant effect upon local results. Neath Port Talbot, like other parts of the country, experiences significant numbers of exceedances of the UK air quality standard. The trend is one of gradual improvement over time.

Concentrations of polyaromatic hydrocarbons exceed the UK Air Quality Objective of 0.25 ng/m<sup>3</sup>, but are less than the EU Target value of 1 ng/m<sup>3</sup>. The trend line shows that concentrations are increasing over time.

Arsenic and cadmium easily comply with the EU Target, both in Port Talbot and Pontardawe.

Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe, except Tawe Terrace. Nickel levels decreased substantially at Tawe Terrace during 2015.

## Neath Port Talbot County Borough Council

The highest rates of fallout of large particles (nuisance dust) were measured in Port Talbot at Port Talbot Fire Station and Prince Street. The highest ever fallout rates were recorded at Prince Street.

None of the 35 planning applications considered on grounds of air quality were considered to pose a risk to compliance with air quality objectives.

### 9.4 Proposed Actions

There are no plans to revoke or modify the Taibach/Margam AQMA, given the breach of the short-term objective for PM<sub>10</sub>.

The next actions to be taken will be to:

- Submit a LAQM Progress report for the calendar year of 2016.
- Submit a LAQM Detailed Assessment of NO<sub>2</sub> at the junction of Victoria Gardens and Cimla Road in Neath. This shall be carried out in respect of the long-term Air Quality Objective.



# Appendices

## Appendix A: QA/QC Data

### Diffusion Tube Bias Adjustment Factors

NO<sub>2</sub> diffusion tubes are sourced from the Environmental Scientifics Group and are prepared using 50% TEA in acetone. The bias adjustment factor of 0.78 was used for 2014, as derived from a co-location study at three locations.

### Factor from Local Co-location Studies (if available)

Continuous analysers were co-located with triplicate diffusion tubes at Port Talbot Fire Station, Pontardawe Swansea Road and Victoria Gardens.

Defra has provided a spreadsheet to facilitate the calculation of local bias adjustment factors. The spreadsheet used can be found at this location:

<http://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html>

Figure A1 – Pontardawe Post Office - Bias adjustment spreadsheet -

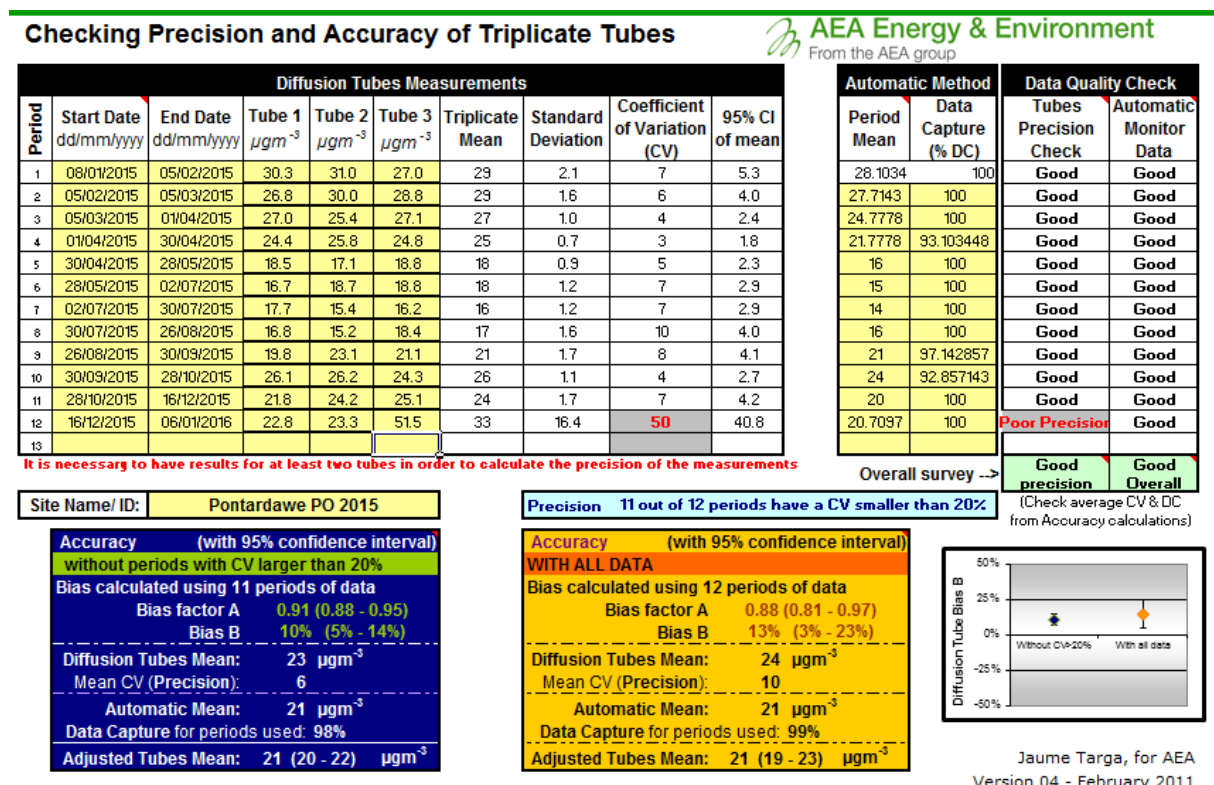


Figure A2 – Port Talbot Fire Station - Bias adjustment spreadsheet -

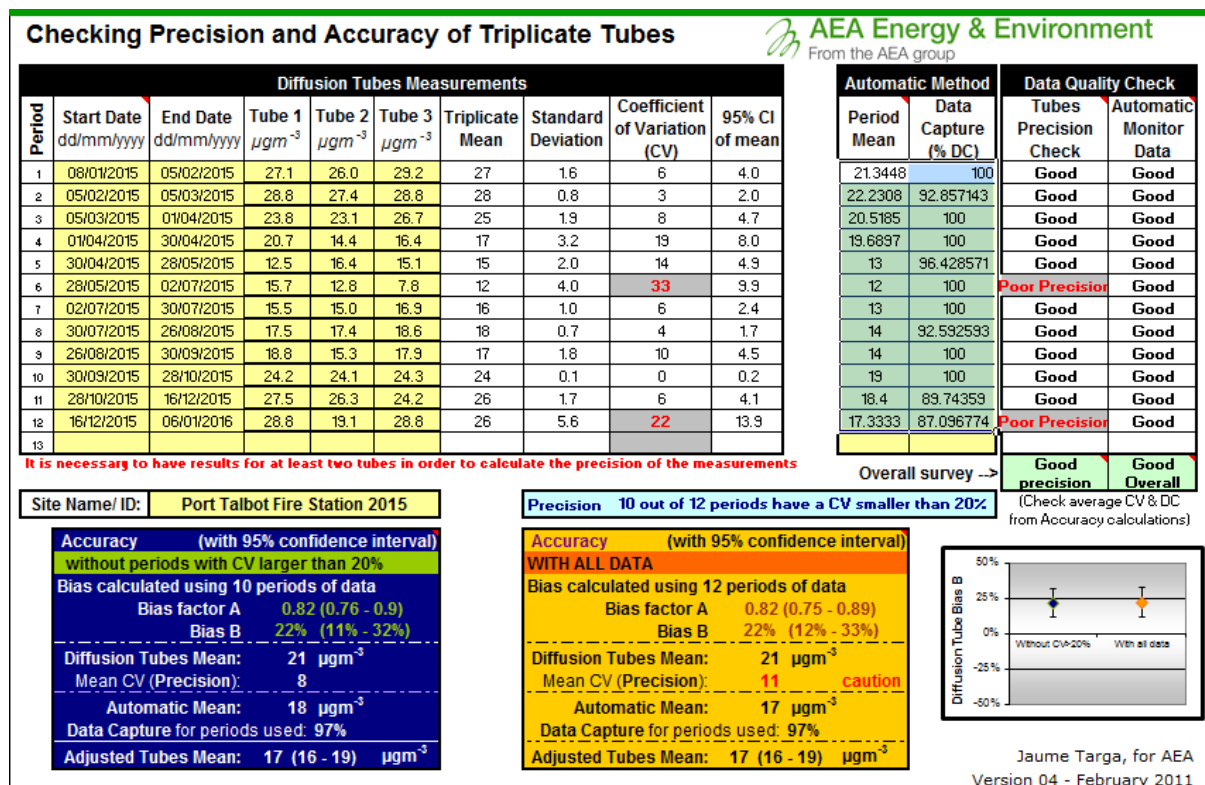
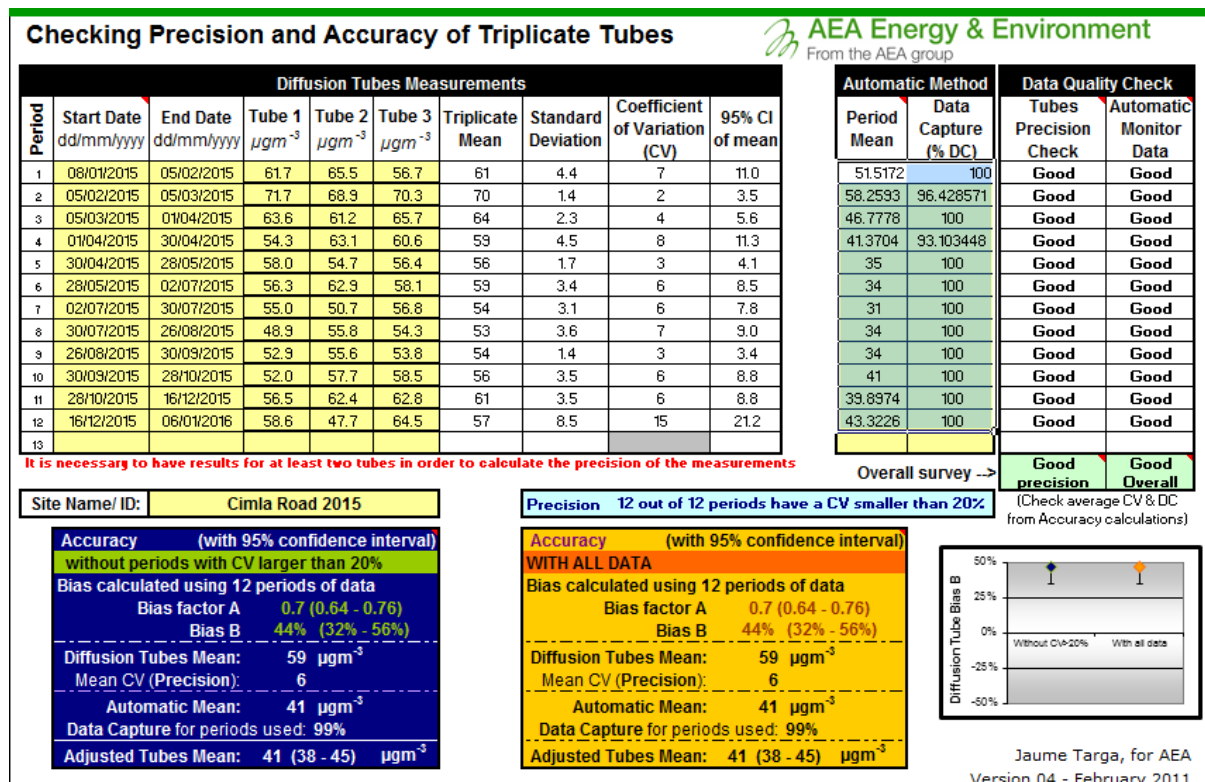


Figure A3 – Cimla Road - Bias adjustment spreadsheet -



## Neath Port Talbot County Borough Council

The locally derived bias adjustment factor of 0.80 is derived from the average of the three sites e.g.  $(0.88 + 0.82 + 0.7) / 3$ .

### **PM Monitoring Adjustment**

No PM adjustment was required for PM<sub>10</sub> analysers operated by Neath Port Talbot County Borough Council as FDMS TEOMs were used in all cases.

### **Short-term to Long-term Data adjustment**

No data was lost in monitoring diffusion tube sites during 2015. Consequently, no long-term data adjustment was necessary.

### **QA/QC of automatic monitoring**

The AURN site is subject to the quality control procedures of the network. Neath Port Talbot County Borough Council staff act as Local Site Operator, carrying out calibrations on an approximately fortnightly basis. There are regular site audits and validation and ratification are carried out by AURN staff prior to dissemination of the data via <http://uk-air.defra.gov.uk/>.

All PM<sub>10</sub> analysers are FDMS/TEOMs with C/B driers. No factors are applied to this data during the collection process. All equipment is covered by service and maintenance contracts with suppliers. These contracts provide for 6 monthly servicing and emergency callouts.

Monitoring stations are covered by a QA/QC contract with Ricardo-AEA which provides for two site audits per year and QA/QC of the data which is polled by AEAT and disseminated on the Welsh Air Quality Forum website. Data is subject to a similar QA/QC standard as the AURN.

### **QA/QC of diffusion tube monitoring**

Harwell Scientifics have been shown to have good performance in respect of recent Wasp scheme analyses. Details of the most recent Wasp results can be viewed at the following Internet location:

[http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-121--124-and-AIR-PT-Rounds-1-3-4-6-\(April-2013--February-2015\)-NO2-report.pdf](http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-121--124-and-AIR-PT-Rounds-1-3-4-6-(April-2013--February-2015)-NO2-report.pdf)

## Appendix B: Raw NO2 Data

Site Id	MonthYear	NO2 Conc ug
3	1/2015	26.9
3	2/2015	24.2
3	3/2015	24.6
3	4/2015	18.4
3	5/2015	12.5
3	6/2015	12.3
3	7/2015	13.8
3	8/2015	15.6
3	9/2015	17.1
3	10/2015	21.3
3	11/2015	19.4
3	12/2015	12.7
4	1/2015	34.9
4	2/2015	41.9
4	3/2015	38.0
4	4/2015	34.0
4	5/2015	19.8
4	6/2015	26.7
4	7/2015	25.7
4	8/2015	28.0
4	9/2015	30.5
4	10/2015	41.7
4	11/2015	34.4
4	12/2015	32.4
5	1/2015	50.5
5	2/2015	51.3
5	3/2015	42.6
5	4/2015	32.3
5	5/2015	31.9
5	6/2015	30.1
5	7/2015	31.3
5	8/2015	27.5
5	9/2015	37.4
5	10/2015	41.5
5	11/2015	41.7
5	12/2015	28.4
7	1/2015	40.5
7	2/2015	40.1
7	3/2015	39.2
7	4/2015	34.8
7	5/2015	33.0
7	6/2015	30.1

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
7	7/2015	31.1
7	8/2015	31.7
7	9/2015	33.4
7	10/2015	37.6
7	11/2015	38.0
7	12/2015	31.1
8	1/2015	46.8
8	2/2015	35.3
8	3/2015	40.3
8	4/2015	30.9
8	5/2015	32.1
8	6/2015	28.2
8	7/2015	32.6
8	8/2015	32.1
8	9/2015	31.5
8	10/2015	36.9
8	11/2015	42.0
8	12/2015	34.4
9	1/2015	49.0
9	2/2015	36.1
9	3/2015	39.7
9	4/2015	32.8
9	5/2015	30.7
9	6/2015	29.4
9	7/2015	31.9
9	8/2015	28.0
9	9/2015	35.5
9	10/2015	40.7
9	11/2015	42.6
9	12/2015	35.3
10	1/2015	45.9
10	2/2015	45.1
10	3/2015	38.8
10	4/2015	34.6
10	5/2015	27.6
10	6/2015	30.0
10	7/2015	29.8
10	8/2015	29.6
10	9/2015	33.6
10	10/2015	35.5
10	11/2015	39.9
10	12/2015	32.4
11	1/2015	47.0
11	2/2015	43.6

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
11	3/2015	43.6
11	4/2015	38.8
11	5/2015	24.6
11	6/2015	31.9
11	7/2015	30.5
11	8/2015	28.6
11	9/2015	31.5
11	10/2015	38.0
11	11/2015	36.5
11	12/2015	28.4
12	1/2015	50.3
12	2/2015	48.6
12	3/2015	42.2
12	4/2015	34.6
12	5/2015	29.8
12	6/2015	29.6
12	7/2015	27.8
12	8/2015	29.4
12	9/2015	35.7
12	10/2015	39.9
12	11/2015	37.1
12	12/2015	31.5
13	1/2015	50.9
13	2/2015	44.5
13	3/2015	37.4
13	4/2015	29.2
13	5/2015	28.0
13	6/2015	27.3
13	7/2015	25.9
13	8/2015	25.2
13	9/2015	30.9
13	10/2015	35.1
13	11/2015	31.3
13	12/2015	28.6
14	1/2015	55.7
14	2/2015	48.0
14	3/2015	45.9
14	4/2015	31.7
14	5/2015	30.9
14	6/2015	30.1
14	7/2015	30.5
14	8/2015	32.4
14	9/2015	36.1
14	10/2015	41.7

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
14	11/2015	39.9
14	12/2015	30.1
15	1/2015	49.5
15	2/2015	56.8
15	3/2015	45.1
15	4/2015	34.9
15	5/2015	31.3
15	6/2015	28.6
15	7/2015	31.5
15	8/2015	28.6
15	9/2015	34.9
15	10/2015	36.5
15	11/2015	40.3
15	12/2015	30.7
16	1/2015	54.0
16	2/2015	54.7
16	3/2015	45.5
16	4/2015	36.5
16	5/2015	35.5
16	6/2015	35.9
16	7/2015	31.1
16	8/2015	35.3
16	9/2015	40.1
16	10/2015	36.9
16	11/2015	47.4
16	12/2015	41.5
17	1/2015	43.8
17	2/2015	53.2
17	3/2015	46.7
17	4/2015	43.0
17	5/2015	31.5
17	6/2015	34.9
17	7/2015	35.1
17	8/2015	34.6
17	9/2015	42.4
17	10/2015	47.6
17	11/2015	48.2
17	12/2015	49.9
18	1/2015	48.8
18	2/2015	55.1
18	3/2015	52.0
18	4/2015	42.0
18	5/2015	47.0
18	6/2015	40.9

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
18	7/2015	45.1
18	8/2015	42.8
18	9/2015	44.0
18	10/2015	45.7
18	11/2015	52.4
18	12/2015	39.6
19	1/2015	27.5
19	2/2015	28.4
19	3/2015	24.6
19	4/2015	17.1
19	5/2015	14.6
19	6/2015	12.1
19	7/2015	15.7
19	8/2015	17.9
19	9/2015	17.3
19	10/2015	24.2
19	11/2015	25.9
19	12/2015	25.5
20	1/2015	56.1
20	2/2015	50.1
20	3/2015	47.0
20	4/2015	40.3
20	5/2015	38.8
20	6/2015	37.6
20	7/2015	38.6
20	8/2015	35.7
20	9/2015	39.0
20	10/2015	40.1
20	11/2015	46.8
20	12/2015	44.9
21	1/2015	64.5
21	2/2015	64.1
21	3/2015	47.8
21	4/2015	46.3
21	5/2015	33.0
21	6/2015	38.6
21	7/2015	43.2
21	8/2015	45.5
21	9/2015	49.2
21	10/2015	55.3
21	11/2015	55.3
21	12/2015	53.4
22	1/2015	44.0
22	2/2015	39.0



## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
22	3/2015	35.7
22	4/2015	28.0
22	5/2015	25.7
22	6/2015	25.7
22	7/2015	23.8
22	8/2015	23.2
22	9/2015	29.8
22	10/2015	30.3
22	11/2015	36.1
22	12/2015	37.4
23	1/2015	37.8
23	2/2015	39.9
23	3/2015	41.3
23	4/2015	33.2
23	5/2015	27.6
23	6/2015	28.6
23	7/2015	25.3
23	8/2015	29.4
23	9/2015	32.3
23	10/2015	44.2
23	11/2015	38.8
23	12/2015	34.8
24	1/2015	46.1
24	2/2015	47.8
24	3/2015	42.0
24	4/2015	34.9
24	5/2015	33.6
24	6/2015	27.8
24	7/2015	32.6
24	8/2015	30.5
24	9/2015	34.9
24	10/2015	35.9
24	11/2015	40.3
24	12/2015	33.2
25	1/2015	36.3
25	2/2015	34.9
25	3/2015	35.3
25	4/2015	34.9
25	5/2015	24.2
25	6/2015	23.4
25	7/2015	23.0
25	8/2015	26.5
25	9/2015	27.6
25	10/2015	35.1

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
25	11/2015	30.9
25	12/2015	32.6
26	1/2015	39.4
26	2/2015	43.0
26	3/2015	44.2
26	4/2015	42.8
26	5/2015	38.4
26	6/2015	38.8
26	7/2015	39.0
26	8/2015	32.8
26	9/2015	38.0
26	10/2015	43.8
26	11/2015	48.6
26	12/2015	44.9
27	1/2015	64.3
27	2/2015	62.8
27	3/2015	55.1
27	4/2015	45.7
27	5/2015	40.9
27	6/2015	42.6
27	7/2015	44.7
27	8/2015	45.1
27	9/2015	42.6
27	10/2015	54.5
27	11/2015	50.9
27	12/2015	39.6
28	1/2015	41.7
28	2/2015	45.9
28	3/2015	38.6
28	4/2015	36.1
28	5/2015	27.3
28	6/2015	26.9
28	7/2015	28.6
28	8/2015	30.0
28	9/2015	30.7
28	10/2015	31.5
28	11/2015	38.0
28	12/2015	40.3
33	1/2015	29.4
33	2/2015	28.6
33	3/2015	26.5
33	4/2015	25.0
33	5/2015	18.0
33	6/2015	18.0

## Neath Port Talbot County Borough Council

Site Id	MonthYear	NO2 Conc ug
33	7/2015	16.3
33	8/2015	16.9
33	9/2015	21.3
33	10/2015	25.5
33	11/2015	23.8
33	12/2015	23.4
34	1/2015	61.2
34	2/2015	70.3
34	3/2015	63.4
34	4/2015	59.1
34	5/2015	56.3
34	6/2015	58.9
34	7/2015	54.1
34	8/2015	52.8
34	9/2015	54.0
34	10/2015	55.9
34	11/2015	60.5
34	12/2015	56.8