2014 Air Quality Progress Report for Neath Port Talbot County Borough Council

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

Date (August, 2014)

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Report Reference number	E2/16/9f
Date	August 2014

Executive Summary

Measurements of PM_{10} in Port Talbot revealed a breach of the short term air quality objective at the Prince Street monitoring site, which is operated by Natural Resources Wales. Consequently, the Council is to deploy a new dual PM_{10} and $PM_{2.5}$ FDMS monitor at this location as soon as possible in 2014. There was no similar breach of the short term air quality objective at any other sites in Port Talbot.

$PM_{2.5}$ concentrations easily comply with the EU Target and Limit values which are to be met by 2015.

Once again, there were no problems with levels of lead, arsenic or cadmium. Nickel levels were compliant with the EU Target at three out of four locations, the exception being Tawe Terrace. This site is close to the Wall Colmonoy works, which makes extensive use of the metal in the manufacturing process. A great deal of work is being undertaken to attempt to further reduce nickel levels at this site.

Levels of sulphur dioxide and carbon monoxide complied with air quality objectives.

Ozone concentrations exceeded the UK recommended air quality objective again during 2013, but this is a common occurrence across the country.

Polyaromatic hydrocarbons (PAH) at Port Talbot exceeded the UK air quality objective but easily complied with the EU Limit value. PAH levels are not currently improving.

Nitrogen dioxide complied with air quality objectives at all locations although locations at Pontardawe and Victoria Gardens in Neath remain close to exceeding the annual averaged Air Quality Objective.

Nuisance dust measurements once again show that the highest fallout rates are encountered in Port Talbot, with four sites having monthly measurements greater than the “limit” of 200 $mg/m^2/day$. Prince Street was the highest of these, with an annual average of 199 $mg/m^2/day$. 2013 was also a poor year for the Cwmllynfell site, which is close to an opencast site.

The next course of action will be to submit the 2015 Updating and Screening Assessment and conduct a Detailed Assessment of the 24hr air quality objective for PM_{10} at Prince Street, Port Talbot.

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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.

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 Local Air Quality Management 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 micrograms per cubic metre µg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable). The date for compliance is also provided.

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

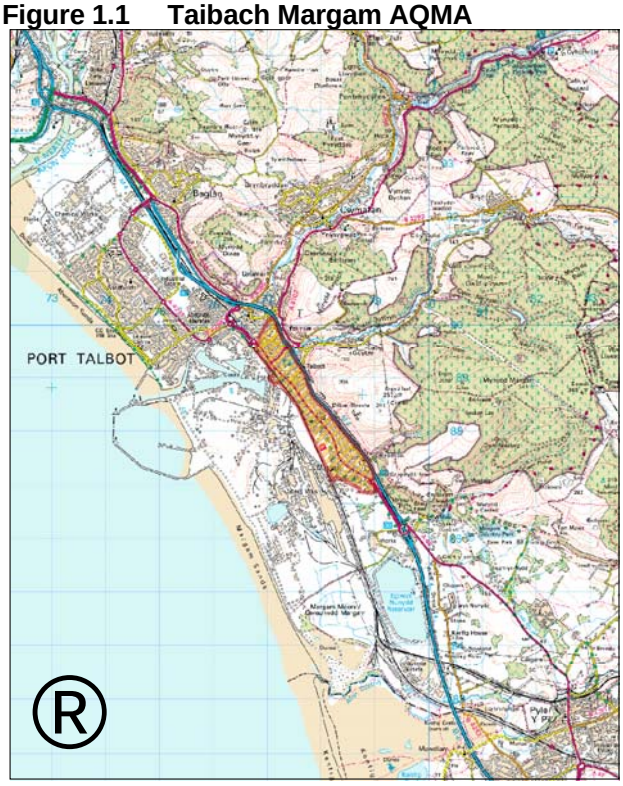
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, 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_{10} in Port Talbot. This was due the predicted failure to achieve the Government's Air Quality Objective for PM_{10} 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 (USA) showed that there was no need to proceed to a detailed assessment in respect of all but two pollutants, nitrogen dioxide and PM_{10}. Nitrogen dioxide measurements at Victoria Gardens, Neath had shown some increases that merited further investigation. PM_{10} 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_{10} showed that it would not be necessary to declare an AQMA in the vicinity of Victoria Gardens. PM_{10} 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.

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 PM10 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_{10} Air Quality Objectives, both at Port Talbot Fire Station and the new site at Dyffryn School, Port Talbot. There were no breaches of Air Quality Objectives for the other LAQM pollutants, although one site at Victoria Gardens, Neath came close to doing so.

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

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

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

A Detailed Assessment of nitrogen dioxide was reported in 2011. This showed that 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_2 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_{10} at respect of Prince Street, Margam.

An Air Quality Progress Report was reported in July 2013. This identified the need to proceed to a Detailed Assessment for NO_2 at Victoria Gardens in Neath.

Table 1.2 Summary of previous air quality reports

Report	Date produced	Outcomes
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_{10} 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_2 and PM_{10}.
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_2 at Victoria Gardens. PM_{10} 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_2 at several busy roads.
Annual air quality report	2006	Summary of routine measurements.
Detailed Assessment	April 2007	No AQMAs required for NO_2, but monitoring to continue at sites “at risk” of exceedance.
Annual air quality report	2007	Summary of routine measurements.
Annual air quality report	2008	Summary of routine measurements.
Updating and Screening Assessment	May 2009	Detailed Assessment required in respect of NO_2 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_2 recommended for 2 sites in Pontardawe & Neath. Detailed Assessment for PM_{10} recommended for Prince Street in Port Talbot.
Progress report	2013	Detailed Assessment recommended for Victoria Gardens in Neath.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Measurements of CO, PM_{10}, SO_2 and NO_2 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 2013 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 seven PM_{10} 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 Richardo-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.

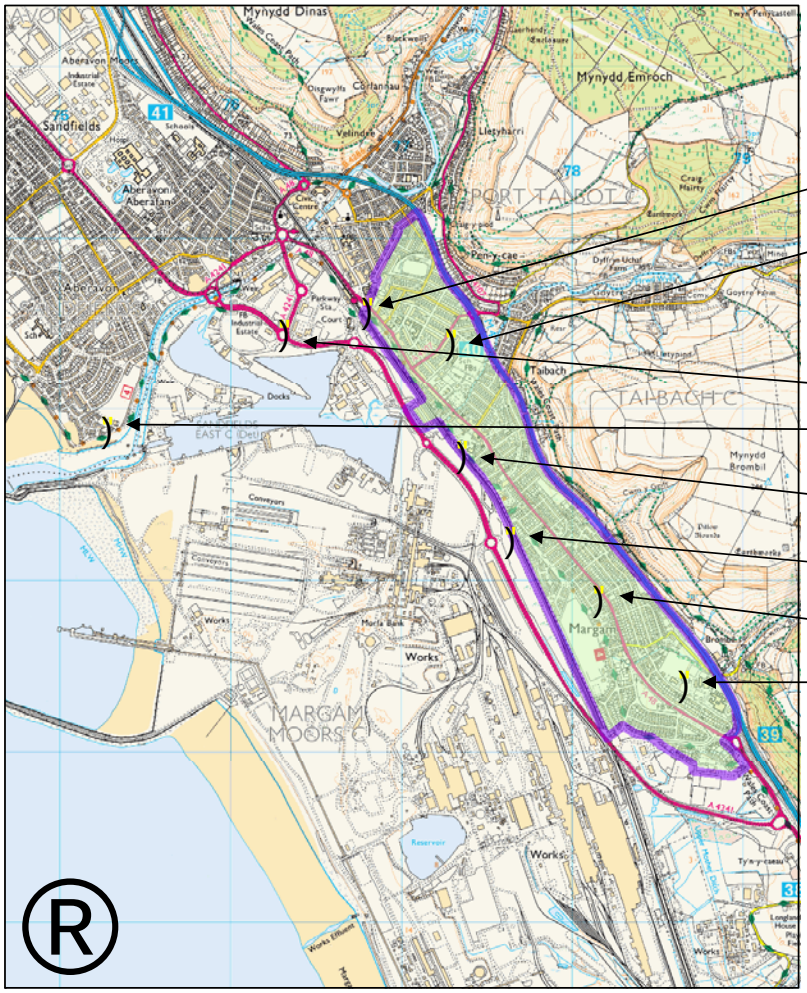
Data polled by Ricardo-AEA can be found on the Welsh Air Quality Forum website.

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

There is also a TEOM deployed by Natural Resources Wales at Prince Street in Port Talbot.

Figures 2.1 to 2.4 show the locations of the monitors.

Figure 2.1 Map of Automatic PM_{10} Monitoring Sites



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

Figure 2.2 Map of Automatic NO_2 Monitoring Sites

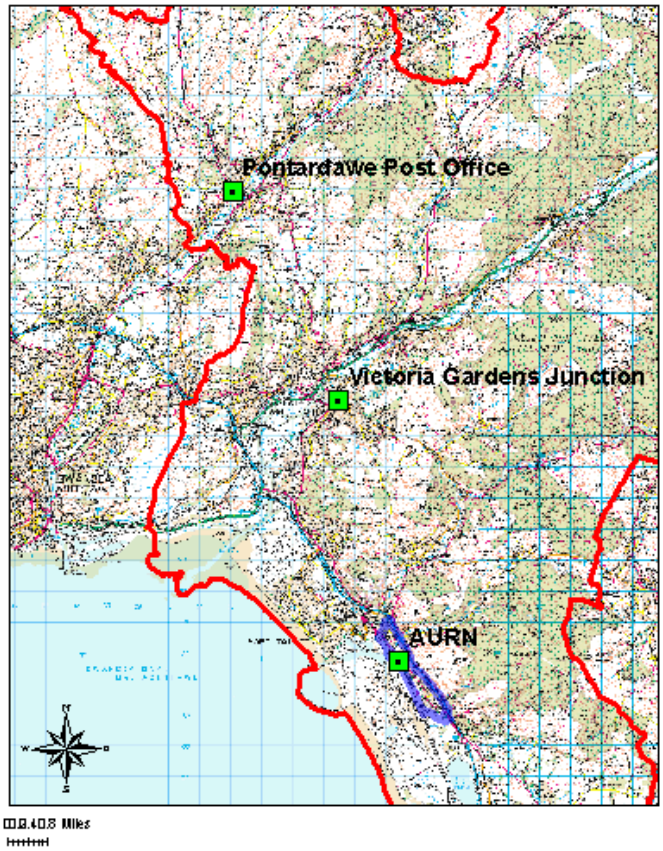


Figure 2.3 NO_2 analyser at Cimla Road/Victoria Gardens in Neath

Figure 2.4 NO_2 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	2.0	PM_{10}, SO_2, CO, O_3, NO_2	Y	FDMS, UV fluorescence, IR absorption, UV absorbtion, chemiluminescence	Y (16)	8	Y
DS1	Dyffryn School	Industrial	278700	187387	2.0	PM_{10}	Y	FDMS	Y (88)	75	N
TW1	Twll-yn-y Wal Park	Industrial	278196	187891	2.0	PM_{10}	Y	FDMS	Y (14)	2	N
TH1	Theodore Road	Industrial	277328	189385	2.0	PM_{10}	Y	FDMS	Y (5)	6	N
TR1	Talbot Road	Roadside	276833	189567	2.0	PM_{10}	Y	FDMS	N	2	N
LW1	Port Talbot Little Warren	Industrial	275313	188879	3.0	PM_{10}	N	FDMS	N	160	N
DK1	Port Talbot Docks	Industrial	276346	189446	2.5	PM_{10}	Y	FDMS	N	2	N
PS1	Prince St.	Industrial	277689	188235	2.5	PM_{10}	Y	TEOM (VCM)	Y (40)	47	Y
VG2	Victoria Gardens	Roadside	275471	197183	1.4	NO_2	N	Chemiluminescence	Y (21)	1	Y
PD1	Pontardawe Post Office	Roadside	272031	203950	1.4	NO_2	N	Chemiluminescence	Y (3)	2.5	Y

2.1.2 Non-Automatic Monitoring Sites

Lead is measured at Port Talbot Fire Station and at Pontardawe Leisure Centre. 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.

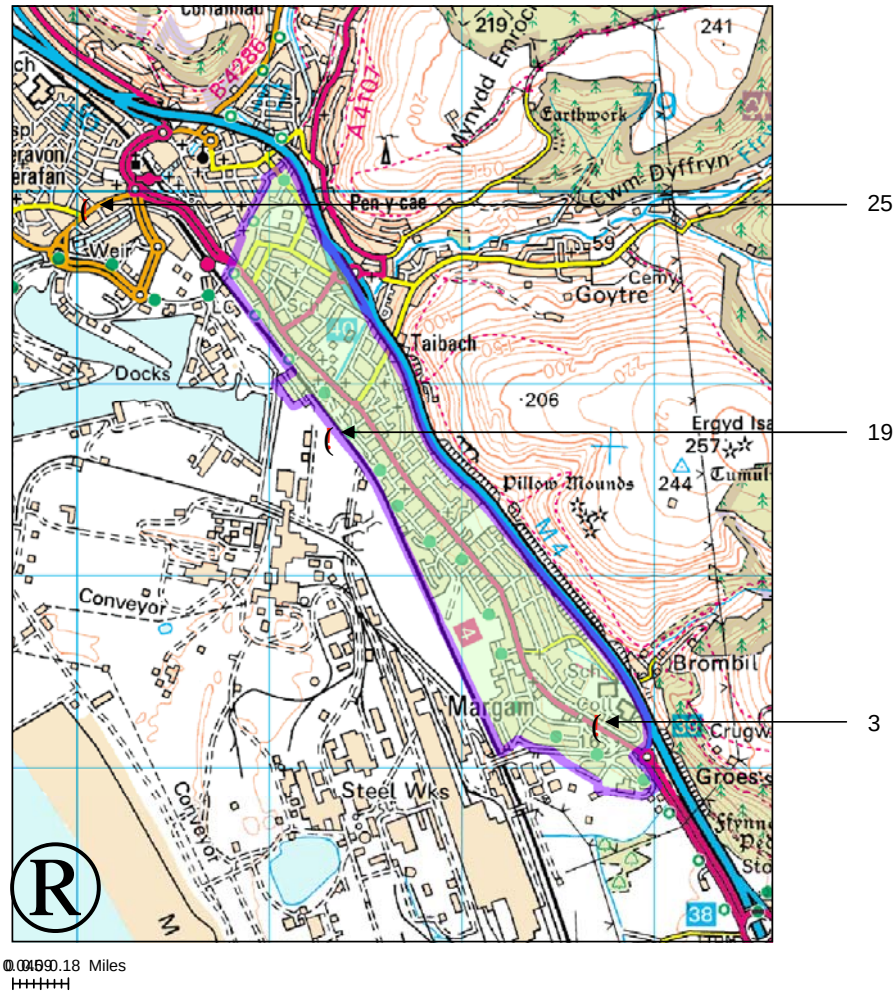
Measurements at Port Talbot Fire Station are carried out as part of the UK Metals Network and are subject to the quality assurance procedures of this network. The Council employs Ricardo-AEA to analyse and report results for filters exposed at Pontardawe Leisure Centre. The sampler is subject to a service contract to ensure it is correctly maintained.

PM_{10} is also measured at Port Talbot Fire Station using a Partisol, which is quality assured by Environmental Scientifics Group (ESG).

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 Locations of NO_2 diffusion tubes in Neath Port Talbot

Figure 2.6 Location of NO_2 diffusion tubes near Port Talbot



The Port Talbot AQMA is shaded green.

Figure 2.7 Location of NO_2 diffusion tubes in Briton Ferry

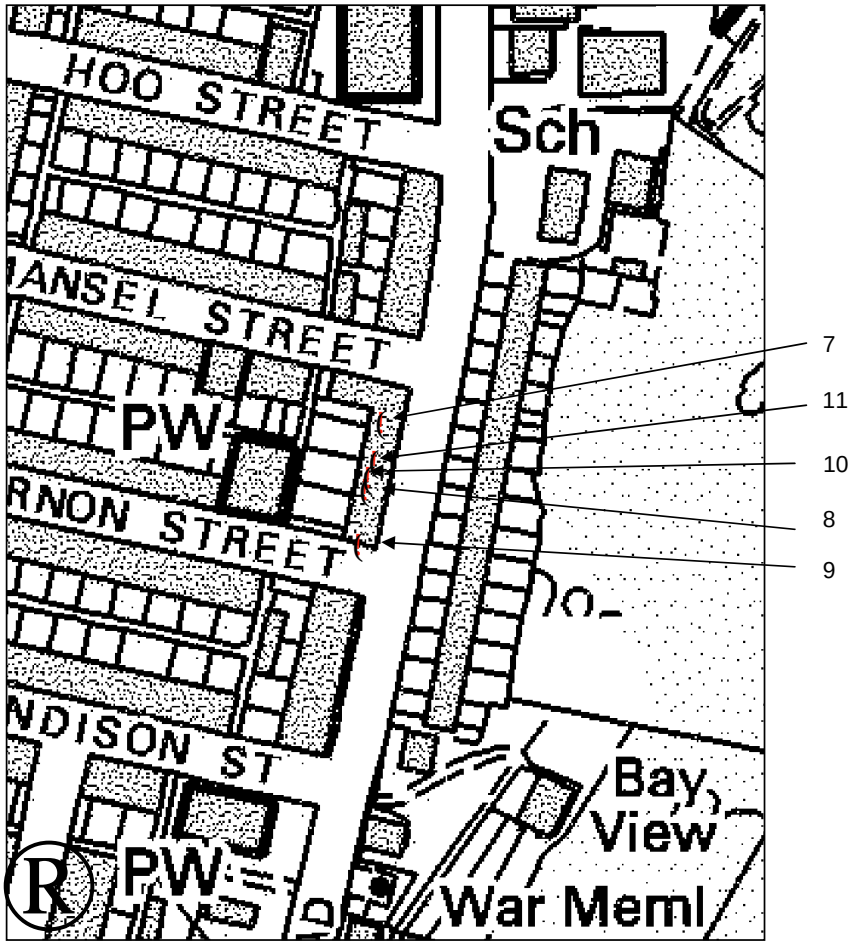


Figure 2.8 Location of NO_2 diffusion tubes in Neath

Figure 2.9 Location of NO_2 diffusion tubes in Pontardawe

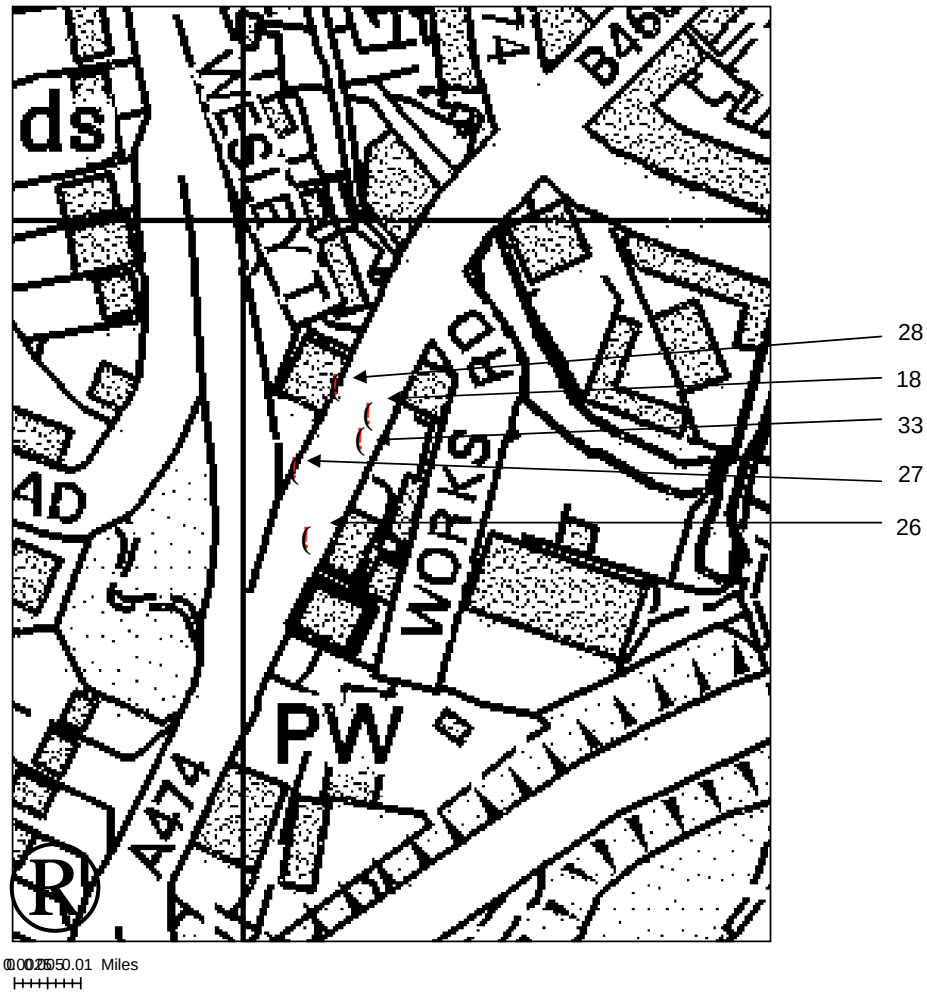


Table 2.2 Details of Non- Automatic Monitoring Sites

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	2.0	NO_2	Y	N	Y (2m)	1m	N
4	8 Victoria Gardens, Neath	Roadside	275494	197272	2.5	NO_2	N	N	Y (2m)	4.5 m	N
5	28 Eastland Road, Neath	Roadside	275420	197161	2.5	NO_2	N	N	Y (0m)	4 m	N
7	Moby's, Neath Road, Briton Ferry	Roadside	274312	194601	2.5	NO_2	N	N	Y (2m)	1.5 m	Y

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?
8	185 Neath Road, Briton Ferry	Roadside	274307	194580	2.5	NO_2	N	N	Y (0m)	1.5 m	Y
9	179 Neath Road, Briton Ferry	Roadside	274305	194563	2.5	NO_2	N	N	Y (0m)	1.5 m	Y
10	187 Neath Road, Briton Ferry	Roadside	274308	194584	2.5	NO_2	N	N	Y (0m)	1.5 m	Y
11	189 Neath Road, Briton Ferry	Roadside	274310	194589	2.5	NO_2	N	N	Y (0m)	1.5 m	Y
12	34 Eastland Road, Neath	Roadside	275427	197139	2.5	NO_2	N	N	Y (0m)	4 m	N

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?
13	40 Eastland Road, Neath	Roadside	275415	197110	2.5	NO_2	N	N	Y (0m)	4 m	N
14	32 Eastland Road, Neath	Roadside	275431	197149	2.5	NO_2	N	N	Y (0m)	4 m	N
15	30 Eastland Road, Neath	Roadside	275434	197157	2	NO_2	N	N	Y (0m)	4 m	N
16	5 Victoria Gardens, Neath	Roadside	275464	197230	2.5	NO_2	N	N	Y (0m)	3.5 m	Y
17	1 Greenway Road, Neath	Roadside	275455	197211	2.5	NO_2	N	N	Y (0m)	1 m	Y

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?
18	Pontardawe Post Office	Roadside	272034	203954	2.5	NO_2	N	N	Y (0m)	1m	Y
19	Port Talbot Fire Station	Industrial	277399	188734	2.5	NO_2	Y	Y	Y (16m)	8 m	N
20	3 Victoria Gardens, Neath	Roadside	275463	197223	2	NO_2	N	N	Y (0m)	3.5 m	Y
21	50 Greenway Road, Neath	Roadside	275452	197195	2.5	NO_2	N	N	Y (0m)	1 m	Y
22	54 Windsor Road, Neath	Roadside	275146	197248	2.5	NO_2	N	N	Y (0m)	1.5 m	Y

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?
23	4 Victoria Gardens, Neath	Roadside	275482	197227	2.5	NO_2	N	N	Y (0m)	3.5 m	Y
24	Stockham's Corner Flats	Roadside	275200	196905	2.5	NO_2	N	N	Y (0m)	3 m	Y
25	Old Fire Station, Water Street, Port Talbot	Roadside	276131	189926	2.5	NO_2	N	N	Y (3m)	1 m	Y
26	10 Swansea Road, Pontardawe	Roadside	272019	203924	2.5	NO_2	N	N	Y (0m)	1 m	Y

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?
27	11a Swansea Road, Pontardawe	Roadside	272016	203941	2.5	NO_2	N	N	Y (0m)	1 m	Y
28	8 Swansea Road, Pontardawe	Roadside	272026	203961	2.5	NO_2	N	N	Y (0m)	1 m	Y
33	Bus Stop near Pontardawe Post Office	Roadside	272032	203948	1.4	NO_2	N	Y	Y (3m)	2.5 m	N
34	Lights at Cimla Junction	Roadside	275472	197185	1.4	NO_2	N	Y	Y (20m)	1.5 m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

Table 2.3 summarises the results from automatic monitors compared to the annual mean objective. Only the site at Victoria Gardens (42 µg/m^3) exceeded the annual air quality objective of 40 µg/m^3. 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_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Annual Mean Concentration (µg/m^3)				
					2009* [c]	2010* [c]	2011* [c]	2012* [c]	2013 [c]
PT2	Industrial	Y	98	98	17	19	18	18	17
VG2	Roadside	N	99	99	-	-	-	**51**	**42**
PD1	Roadside	N	92	92	-	-	-	28	23

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

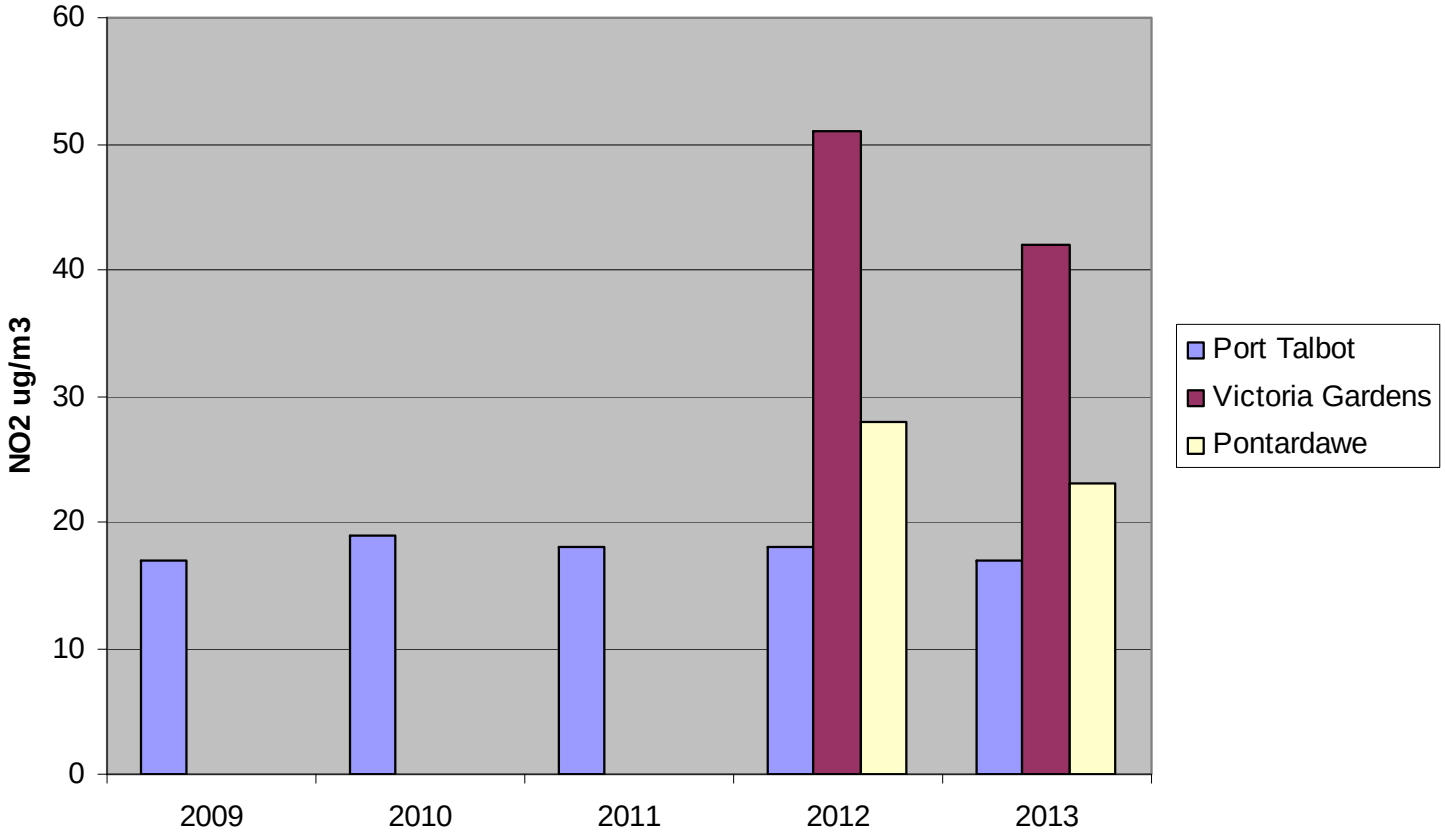
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (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

Figure 2.10 Trends in Annual Mean NO_2 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. 2013 was the first complete year in which continuous monitoring was carried out at either Victoria Gardens or Pontardawe Post Office.

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_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Number of Hourly Means > 200µg/m^3				
					2009* [c]	2010* [c]	2011* [c]	2012* [c]	2013 [c]
PT2	Industrial	Y	98	98	0	0	0	0	0
VG2	Roadside	N	99	99	-	-	-	0 (142)	0
PD1	Roadside	N	92	92	-	-	-	0 (55)	0

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

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

* Number of exceedences for previous years is optional

Diffusion Tube Monitoring Data

Results are shown in table 2.5 below. A local bias adjustment factor of 0.75 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_2 Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3)
3	11 College Green, Margam, Port Talbot	Urban background	Y	N	12	15.7
4	8 Victoria Gardens, Neath	Roadside	N	N	12	28.9
5	28 Eastland Road, Neath	Roadside	N	N	12	30.0
7	Moby's, Neath Road, Briton Ferry	Roadside	N	Triplicate	12	29.1
8	185 Neath Road, Briton Ferry	Roadside	N	N	12	30.1
9	179 Neath Road, Briton Ferry	Roadside	N	N	12	29.4

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3)
10	187 Neath Road, Briton Ferry	Roadside	N	N	12	29.1
11	189 Neath Road, Briton Ferry	Roadside	N	N	12	28.7
12	34 Eastland Road, Neath	Roadside	N	N	12	31.0
13	40 Eastland Road, Neath	Roadside	N	N	11	29.7
14	32 Eastland Road, Neath	Roadside	N	N	12	31.3
15	30 Eastland Road, Neath	Roadside	N	N	12	30.6
16	5 Victoria Gardens, Neath	Roadside	N	N	11	33.7
17	1 Greenway Road, Neath	Roadside	N	N	12	32.9

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3)
18	Pontardawe Post Office	Roadside	N	Triplicate	12	37.3
19	Port Talbot Fire Station	Industrial	Y	Triplicate and Co-located	See Appendix A	
20	3 Victoria Gardens, Neath	Roadside	N	Triplicate	12	34.4
21	50 Greenway Road, Neath	Roadside	N	N	12	30.8
22	54 Windsor Road, Neath	Roadside	N	N	12	25.3
23	4 Victoria Gardens, Neath	Roadside	N	N	12	30.6
24	Stockham's Corner Flats	Roadside	N	triplicate	12	31.0
25	Old Fire Station, Water Street, Port Talbot	Roadside	N	N	12	26.0

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3)
26	10 Swansea Road, Pontardawe	Roadside	N	N	12	32.0
27	11a Swansea Road, Pontardawe	Roadside	N	N	12	38.6
28	8 Swansea Road, Pontardawe	Roadside	N	N	12	28.9
33	Bus Stop near Pontardawe Post Office	Roadside	N	Triplicate and Co-located	See Appendix A	
34	Lights at Cimla Junction	Roadside	N	Triplicate and Co-located	See Appendix A	

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] Means should be "annualised" as in Box 3.2 of TG(09)(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

[b] If an exceedence is measured at a monitoring site not representative of public exposure, NO_2 concentration at the nearest relevant exposure should be estimated based on the "NO_2 fall-off with distance" 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 Box 2.3 of Technical Guidance LAQM.TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30).

[c] These sites were used to create local bias adjustment factors for other nearby sites.

The only site which exceeded the annual mean air quality objective was the one which was co-located with the continuous analyser at Cimla Road/Victoria Gardens. This site is not representative of public exposure.

Nitrogen dioxide diffusion for the last five years are shown in Table 2.6 below:

Table 2.6 Results of NO_2 Diffusion Tubes (2009 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor as per previous table)	2013 (Bias Adjustment Factor = 0.75)
3	Urban background	Y	18.2	19.3	17.0	16.9	15.7
4	Roadside	N	33.3	-	32	28.0	28.9
5	Roadside	N	34.1	36.2	34	31.9	30.0
7	Roadside	N	35.7	35.6	36	30.9	29.1
8	Roadside	N	33.8	35.3	34	30.2	30.1
9	Roadside	N	34.1	35.6	34	30.5	29.4

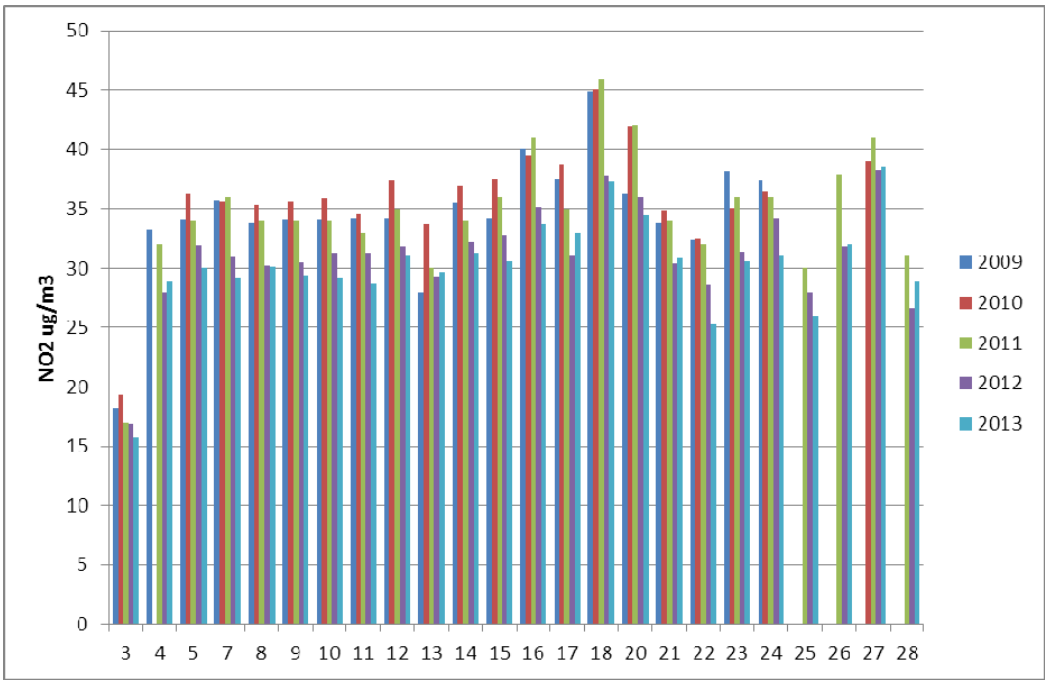
Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor as per previous table)	2013 (Bias Adjustment Factor = 0.75)
10	Roadside	N	34.1	35.9	34	31.3	29.1
11	Roadside	N	34.2	34.5	33	31.3	28.7
12	Roadside	N	34.2	37.4	35	31.8	31.0
13	Roadside	N	28.0	33.7	30	29.3	29.7
14	Roadside	N	35.5	37.0	34	32.2	31.3
15	Roadside	N	34.2	37.5	36	32.7	30.6
16	Roadside	N	40.0	39.5	**41**	35.2	33.7
17	Roadside	N	37.5	38.8	35	31.0	32.9
18	Roadside	N	**44.9**	**45.1**	**46**	37.8	37.3
20	Roadside	N	36.2	**41.9**	**42**	36.0	34.4
21	Roadside	N	33.8	34.8	34	30.4	30.8
22	Roadside	N	32.4	32.5	32	28.6	25.3
23	Roadside	N	38.1	35.1	36	31.4	30.6
24	Roadside	N	37.4	36.4	36	34.2	31.0
25	Roadside	N	No data	No data	30	28.0	26.0
26	Roadside	N	No data	No data	37.9	31.8	32.0
27	Roadside	N	No data	39.0	**41**	38.2	38.6
28	Roadside	N	No data	-	31	26.6	28.9

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), 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



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_2 levels at No.1 Victoria Gardens.

2.2.2 Particulate Matter (PM_{10})

Table 2.7 Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)				
						2009* [c]	2010* [c]	2011* [c]	2012* [c]	2013 [c]
PT2	Industrial	Y	94.5	94.5	Y	25	N/A	29	23	19
DS1	Industrial	Y	80.0	80.0	Y	20	19	17	16	18
TW1	Industrial	Y	87.9	87.9	Y	24	24	30	23	20
TH1	Industrial	Y	88.4	88.4	Y	18	18	23	19	17
TR1	Roadside	Y	86.7	86.7	Y	22	22	25	22	21
LW1	Industrial	N	94.1	94.1	Y	-	-	-	19	19
DK1	Industrial	N	98.2	98.2	Y	22	19	23	18	17
PS1[d]	Industrial	Y	93.7	93.7	Y	-	25	33	22	31

In bold, exceedence of the PM_{10} annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (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

[d] Monitoring at Prince Street was carried out by Natural Resources Wales using a TEOM using VCM correction.

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

Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3				
						2009* [c]	2010* [c]	2011* [c]	2012* [c]	2013 [c]
PT2	Industrial	Y	94.5	94.5	Y	15	13	29	11	17
DS1	Industrial	Y	80.0	80.0	Y	4	6	2 (28)	3	2
TW1	Industrial	Y	87.9	87.9	Y	9	14	21	8	9
TH1	Industrial	Y	88.4	88.4	Y	3 (29)	2	12	3	4
TR1	Roadside	Y	86.7	86.7	Y	6	1	14	8	15
LW1	Industrial	N	94.1	94.1	Y	-	-	-	2	21
DK1	Industrial	N	98.2	98.2	Y	7	2	11	5	10
PS1	Industrial	Y	93.7	93.7	Y	-	19	**50**	11	**46**

In bold, exceedence of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

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

[d] Monitoring at Prince Street was carried out by Natural Resources Wales using a TEOM using VCM correction.

* Number of exceedences for previous years is optional

All sites complied with the daily averaged air quality objective during 2013. The exceedance at Prince Street measured during 2011 was probably due to construction work on the new peripheral distributor road, which is now complete at that location.

Table 2.8 Results of Non-Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)
						2013 [c]
PT2P[d]	Industrial	Y	96.2	96.2	Y	25.4

In bold, exceedence of the PM_{10} annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (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

[d] Measurements carried out with a Partisol.

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

Table 2.9 Results of Non-Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3
						2013 [c]
PT2P[d]	Industrial	Y	96.2	96.2	Y	34

In bold, exceedence of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

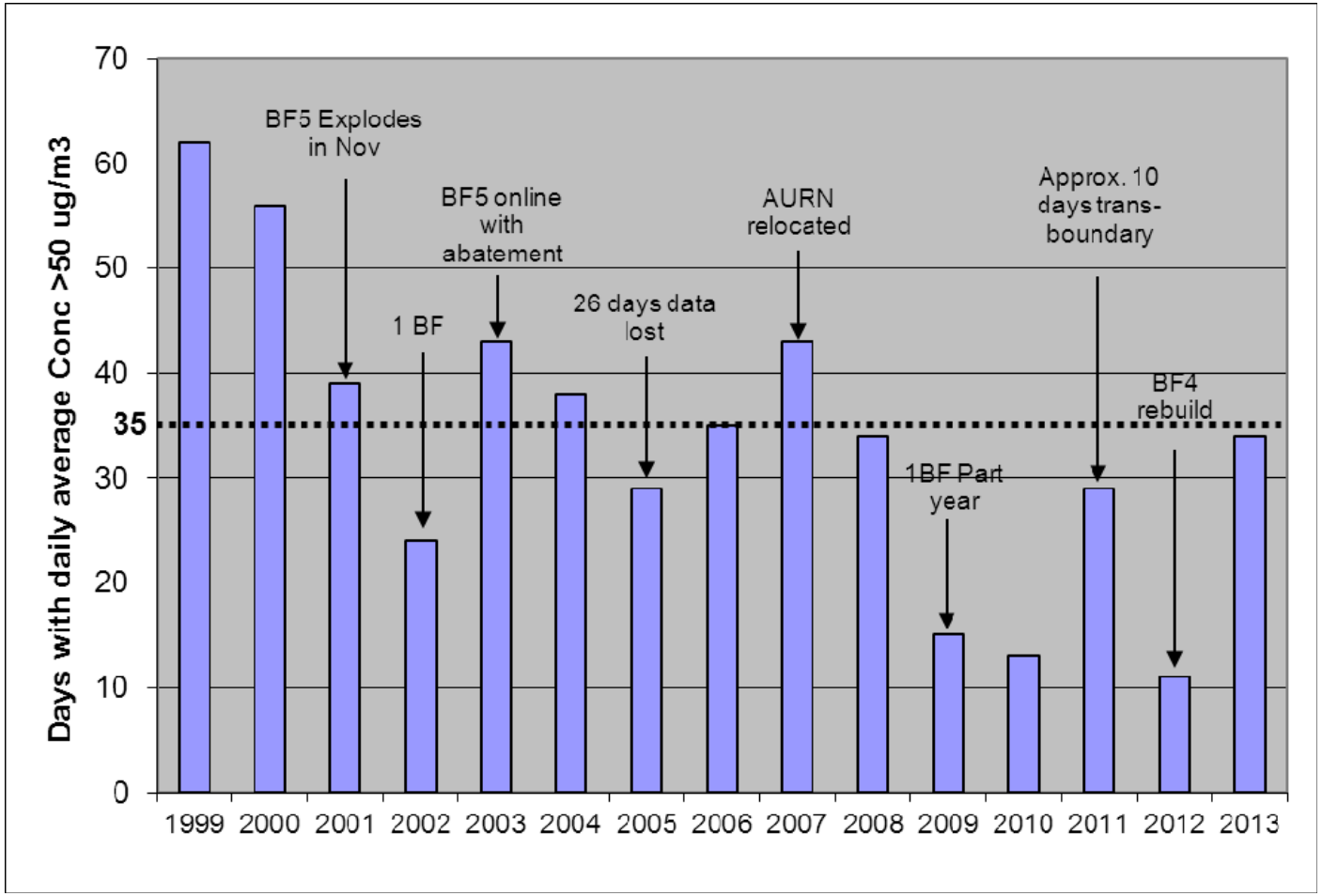
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

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

[d] Measurements were carried out using a Partisol.

* Number of exceedences for previous years is optional

Figure 2.12 Exceedances or PM10 24-hour mean AQO at Port Talbot AURN site.



Note: 2013 data is quoted from Partisol

It is possible that PM_{10} levels may have already been decreasing a little before Blast Furnace number 5 exploded in November 2001. However, the steel works was operating on one blast furnace and reduced throughput for the remainder of that year and for the whole of the next, which probably explains some of the significant reduction in 2002. The rebuilt blast furnace came back online in January 2003 with improved abatement. PM_{10} exceedances increased, but not to the same levels as was previously the case with two blast furnaces. PM_{10} exceedances continued to reduce up to 2005, although there were 26 days of data lost during that year. 2006 did not exceed the short term air quality objective, but only by the narrowest of margins. However, there was an exceedance during 2007 the results of which were a combination of data from Groeswen Hospital and Port Talbot Fire Station which was where the AURN was relocated to. In 2008 there was compliance with the air quality objective, but again by a narrow margin. In 2009 there was partial one blast furnace operation, but normal operation was restored for 2010, which was a particularly good year in respect of PM_{10} exceedances. There were very few transboundary PM_{10} exceedance days during 2010, but by contrast there were ten or eleven such days during 2011. 2012 was the best ever year for PM_{10} compliance although Blast Furnace 4 was being re-built for a significant proportion of the year.

2013 produced a greater number of PM_{10} exceedances than 2012. According to the FDMS analyser at Port Talbot Fire Station, there were 17 exceedances. However the Partisol produced twice as many (34). The reason for the divergence between both monitors was investigated by Ricardo-AEA as part of their Quality Circle of 19th – 20th March 2014. This showed an apparent under-read for the FDMS at higher concentrations. However, both instruments had been maintained and qa/qc checks had not revealed any problems. No similar problems were observed at other sites and the reason for the difference could not be established. As both data sets are considered to be valid by the network. The Council is reporting the higher of the two as the official result on this occasion.

All PM_{10} monitoring locations are representative of public exposure, with the exception of the Docks site, which is located where it is in order to aid triangulation of PM_{10} sources and to establish background levels in an area of potential development.

In 2011 the increased number of exceedances of the short term air quality objective at Prince Street is likely to have been due to the impact of construction of the bypass road nearby. However, the reason for the raised number of exceedances (46) at Prince Street in 2013 is not clear. The instrument used for these measurements was a TEOM, which was subject to correction via the Volatile Correction Model (VCM). The Council will install an FDMS instrument in 2014 as part of a Detailed Assessment of air quality.

2.2.3 Sulphur Dioxide (SO_2)

There were no exceedances of SO_2 air quality objectives during 2013.

Table 2.9 Results of Automatic Monitoring for SO_2: Comparison with Objectives

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2013 % [b]	Number of: [c]		
					15-minute Means > 266µg/m^3	1-hour Means > 350µg/m^3	24-hour Means > 125µg/m^3
PT2	Industrial	Y	99.0	99.0	0	0	0

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

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] 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%)

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

2.2.5 Other Pollutants Monitored

2.2.5.1 Lead

Lead is monitored at Pontardawe Leisure Centre as part of a study of 13 metals that has continued since 1972. A Thermo Partisol® 2025 gravimetric sampling system is used to collect daily samples using Pall Gelman GN4-Metricel filters. For the purpose of metals analysis, filters are bulked and analysed on a weekly basis using inductively coupled atomic emission spectrometry (ICP-AES). The results for 2013 show that the annual average concentration of lead was 7.2 ng/m^3. This is well within the Air Quality Objective of 0.25 µg/m^3 (250 ng/m^3) to be achieved by 31st December 2008. The analysis and reporting is currently contracted to Ricardo-AEA.

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 13.3, 7.1 and 7.4 ng/m^3 respectively, all of which easily comply with the Air Quality Objective.

2.2.5.2 Carbon monoxide

There were no exceedances of the 8-hour average of 10 mg/m^3 (maximum 2.4 mg/m^3) during 2011. 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 AURN.

Table 2.10 Results of Automatic Monitoring of carbon monoxide

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2013 %[b]	Number of Exceedances (percentile in bracket µg/m^3)[c]
					8 hour running mean > 10 mg/m^3
PT2	Urban industrial	Y	99.0	99.0	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] 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%.)

[c] if data capture is less than 90%, include the relevant percentile in brackets

2.2.5.3 $PM_{2.5}$

$PM_{2.5}$ 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 $PM_{2.5}$. A target of 20 µg/m^3 and a limit of 25 µg/m^3 are to be met by 2015. Exposure reduction is to be used to bring about a 20% reduction in background $PM_{2.5}$ levels by 2020 as based upon baseline (2010) values.

Data is drawn from the AURN monitoring station at Port Talbot Fire Station.

The annual average concentration of $PM_{2.5}$ during 2013 at 14 µg/m^3 is well below both the target and limit values. Contractors on behalf of central government will work to establish the baseline concentration for the 20% exposure reduction.

There were no breaches of the EU Air Quality target or limit values for $PM_{2.5}$ to be achieved by 2015.

2.2.5.4 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_2 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_2. 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.

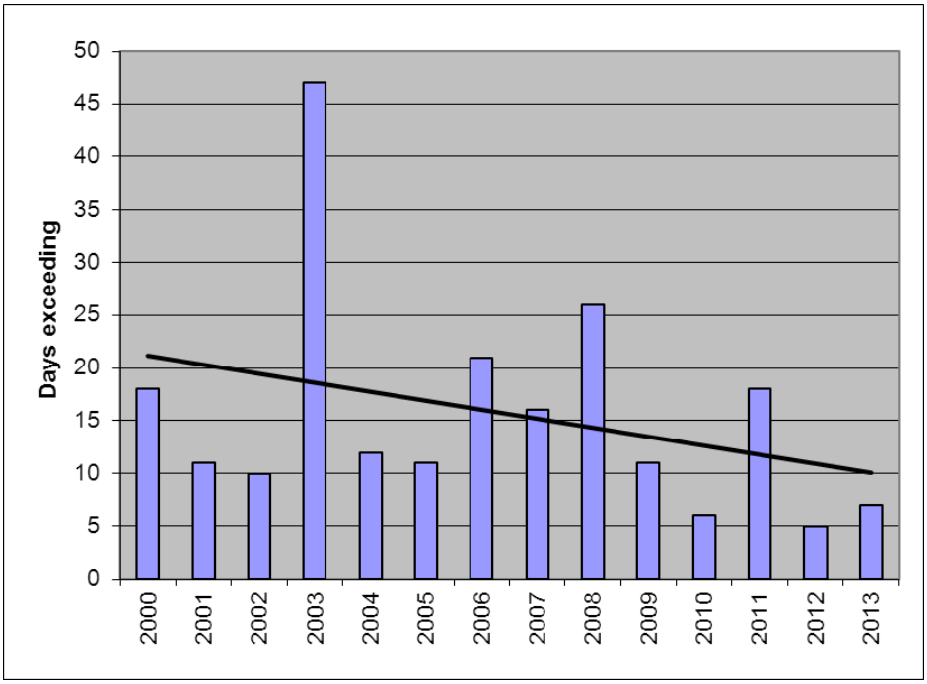
No statutory Air Quality Objective level for Ozone has been set, owing to the potential for trans-boundary sources. However, there is a recommended Air Quality objective for ozone of 100 µg/m^3, measured as a rolling 8hour average. This was breached on a total of 45 occasions on a total of 7 days at the Fire Station.

The long term trend for ozone exceedances shows a slight improvement over time as shown in Table 2.11 and Figure 2.13 below.

Table 2.11 Annual ozone exceedances 2000 – 2013

Year	Exceedances of Air Quality Standard 8hr running mean > 100 µg/m^3	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

Figure 2.13 Days of ozone exceedances of the UK recommended AQO since 2000



2.2.5.5 **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.

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^3 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^3 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 2013.

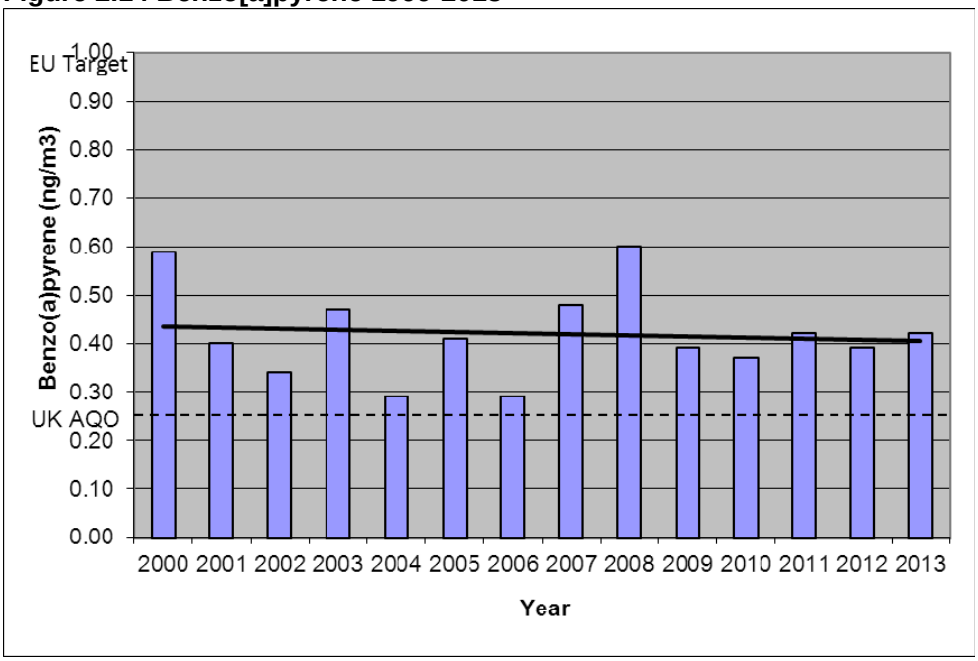
Table 2.12. Benzo[a]pyrene annual averages 1999-2013

B[a]P ng/m^3	Year
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

The results are shown graphically in figure 2.14 below. The B[a]P concentration at Port Talbot frequently exceeds the Air Quality Objective of 0.25 ng/m^3, but is less than the EU target value of 1 ng/m^3. 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 2.14 Benzo[a]pyrene 1999-2013



2.2.5.6 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 polycyclic aromatic hydrocarbons (PAH), (2004/107/EC). This "4th Daughter Directive" set target values for arsenic, cadmium, nickel and benzo[a]pyrene (a PAH) for the total content in the PM_{10} 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 31st December 2012:

Nickel 20 ng/m^3
Arsenic 6 ng/m^3
Cadmium 5 ng/m^3

The Directive requires measurement of air concentrations to be made using valid PM_{10} monitoring methods. The polypropylene ducts previously used to hold the filters did not conform exactly to a PM_{10} 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

2.2.5.6.1 Pontardawe Leisure Centre

The annual mean nickel concentration found in 2013 was 14 ng/m^3, which is 70% 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 0.71 ng/m^3 and 0.18 ng/m^3 respectively. These concentrations represent approximately 11% and 3.6% of their proposed EU target values of 6 and 5 ng/m^3 respectively.

Lead results have been discussed in section 2.2.5.1 above.

From assessment of the measured concentrations at the Pontardawe sites between 1997 and 2013 it is clear that the majority of the metals show a reduction in concentration. The metals that show concentration reductions are shown below (percentage reductions/year are show in brackets):

- Antimony (average decrease of 3%/year)
- Arsenic (average decrease of 6%/year)
- Cobalt (average decrease of 5%/year)

- Copper (average decrease of 1%/year)
- Iron (average decrease of 5%/year)
- Lead (average decrease of 9%/year)
- Nickel (average decrease of 6%/year)
- Zinc (average decrease 9%/year)

The metals showing an increase are (percentage increases/year are shown in brackets):

- Cadmium (average increase of 1.3%/year)
- Cerium (average increase of 1%/year)
- Chromium (average increase of 2%/year)
- Scandium (average increase of 16%/year)
- Selenium (average increase of 5%/year)

2.2.5.6.2 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 2.13, where they are also compared to the corresponding figures for Pontardawe.

The nickel concentration at Port Talbot (1.7 ng/m^3) is only 8.5% the EU Target of 20 ng/m^3.

The annual mean concentrations of arsenic and cadmium have been found to be 0.61 ng/m^3 and 0.93 ng/m^3 respectively. These concentrations represent approximately 10.2% and 18.6% of their EU target values of 6 and 5 ng/m^3 respectively.

Lead results have been discussed in section 2.2.5.1 above.

The level of iron in the atmosphere at Pontardawe (166 ng/m^3) is only 0.2% of the corresponding concentration at Port Talbot (3460 ng/m^3). Whilst this concentration does not represent a concern in respect of health, it represents approximately 15% of the PM_{10} measured in Port Talbot and highlights the influence of the Port Talbot steelworks.

2.2.5.6.3 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 2013 was 36.6 ng/m^3 which is 183% of the Air Quality Objective.

The annual mean concentrations of arsenic and cadmium have been found to be 0.59 ng/m^3 and 0.24 ng/m^3 respectively. These concentrations represent approximately 9.8% and 4.8% of their EU target values of 6 and 5 ng/m^3 respectively.

2.2.5.6.4 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 2013 was 5.4 ng/m^3 which is 27% 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.

The annual mean concentrations of arsenic and cadmium have been found to be 0.88 ng/m^3 and 0.20 ng/m^3 respectively. These concentrations represent approximately 14.7% and 4.0% of their EU target values of 6 and 5 ng/m^3 respectively.

Table 2.13 Annual average metal concentrations during 2013

Element	2013 annual mean concentration (ng/m^3)			
	Port Talbot	Pontardawe Brecon Road	Pontardawe Leisure Centre	Tawe Terrace
As	0.61	0.88	0.3	0.59
Cd	0.93	0.2	0.3	0.24
Ce	-	-	0.6	-
Co	0.16	5.2	0.4	1.30
Cr	2.1	2.2	5.8	8.29
Cu	7.89	5.2	5.0	5.63
Fe	3460	210	166	215
Hg*	0.018	0.020	-	0.100
Mn	45.9	3.9	-	5.0
Ni	1.70	5.4	12.5	**36.6**
Pb	13.3	7.1	7.2	7.4
Sb	-	-	0.9	-
Sc	-	-	0.017	-
Se	-	-	0.6	-
Zn	105	15.8	14.2	17.2
V	2.55	0.84	-	0.86

Figure 2.15 Nickel levels in Swansea Valley 1972 - 2013

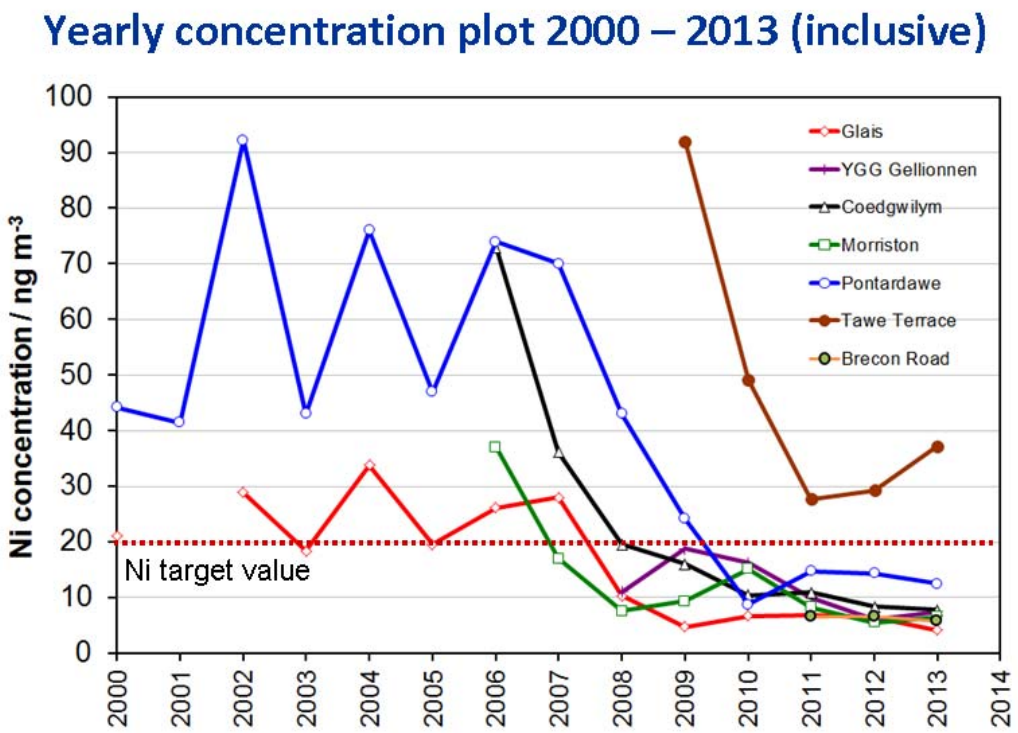
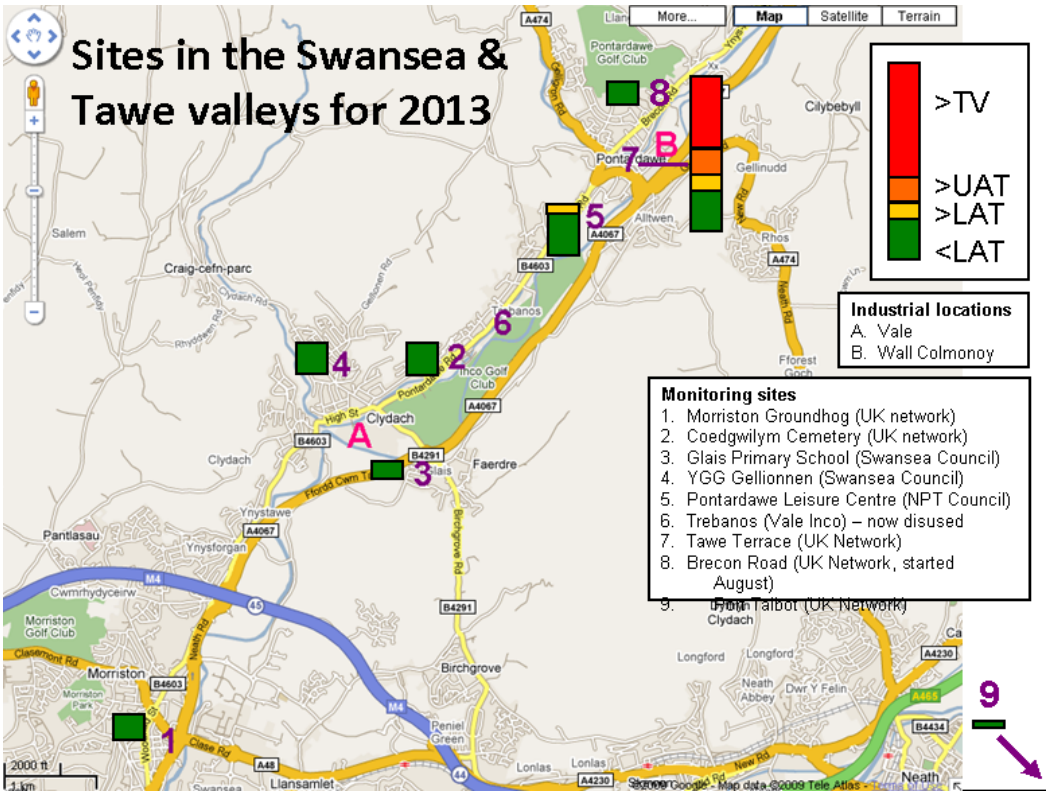


Figure 2.16 shows the location of all of these monitoring sites and their compliance relative to the Target value (TV = 20 ng/m^3). The Lower Assessment Threshold (LAT = 10 ng/m^3) and the Upper Assessment Threshold (14 ng/m^3) are included for completeness, but do not have any implications if they are exceeded.

Note: Graph produced by Richard Brown of NPL.

Figure 2.16 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 (36.6 ng/m^3).increased somewhat compared to 2012. There are further improvements yet to be made at the Wall Colmonoy plant which may result in further reductions in nickel levels.

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.

2.2.5.7 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^2/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[1] (or within

[1] 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/m2/day then the result is reported as “number of days exceeding” equal to

10% of) the "nuisance limit" (200 mg/m^2/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^2/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 2.17. Figures 2.18 to 2.43 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 2.44 shows the average fallout rate for each site during 2013 in a bar chart, and Table 2.15 holds the data for this chart. The sites are ranked in a table and graphically according to the average fallout rate. Figure 2.45 and Table 2.16 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 2.14 Fallout categories as defined by NPT

Fallout rate mg/m^2/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/m2/day.

Results by site

2.2.5.7.1 Cil Carne Farm, Bryn, Port Talbot (Figs. 2.18 & 2.19) **Low** **+55%**

The "nuisance limit" was not exceeded in 2013 and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 75 mg/m^2/day and the average 34 mg/m2/day, the corresponding values for 2012 were 36 and 22 mg/m^2/day respectively. There was 55% increase in fallout rates compared to the previous year, which was mainly due to increases in sand and dirt.

2.2.5.7.2 Prince Street, Port Talbot (Figs. 2.20 & 2.21) **Very high** **+101%**

The "nuisance limit" (200 mg/m^2/day) was exceeded on 123 days in 2013 but there were no days were within 10% of the "nuisance limit". During the previous year there were exceedances on 29 days. In 2013, the maximum fallout rate was 636 mg/m^2/day and the average 199 mg/m^2/day, the corresponding values for 2012 were 297 and 99 mg/m^2/day respectively. The average fallout increased by 101%, which was mainly due to increases in iron, coal and plant/animal fragments.

2.2.5.7.3 **Port Talbot Fire Station** (Figs. 2.22 & 2.23) **Very high** **+77%**

The "nuisance limit" was exceeded on 95 days during 2013 and there were 34 days within 10% of the "nuisance limit". The corresponding figures for 2012 were no days exceeding the "nuisance limit" and 35 days within 10%. The maximum fallout rate was 524 mg/m^2/day and the average 188 mg/m^2/day, and the corresponding values for 2012 were 184 and 106 mg/m^2/day respectively. There was a 77% increase in fallout rates compared to the previous year, which was mainly due to more iron, coal and dirt.

2.2.5.7.4 Eglwys Nunydd Reservoir, Port Talbot (Figs. 2.24 & 2.25) **Moderate** **+45%**

The "nuisance limit" was not exceeded during 2013 and there were no days within 10% of the "nuisance limit". This was also the case in 2012. The maximum fallout rate was 151 mg/m^2/day and the average 64 mg/m^2/day, and the corresponding values for 2012 were 122 and 44 mg/m^2/day respectively. There was a 45% increase in fallout rates compared to the previous year.

2.2.5.7.5 **Gwaun Cae Gurwen** (Figs. 2.26 & 2.27) **Low** **+8%**

The "nuisance limit" was not exceeded during 2013 and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 144 mg/m^2/day and the average 28 mg/m^2/day, and the corresponding values for 2012 were 44 and 23 mg/m^2/day respectively. There was an 8% increase in fallout rates compared to the previous year.

2.2.5.7.6 **Tairgwaith** (Figs. 2.28 & 2.29) **Low** **+25%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 56 mg/m^2/day and the average 30

mg/m^2/day, the corresponding values for 2012 were 58 and 24 mg/m2/day respectively. There was a 25% increase in fallout rates compared to the previous year.

2.2.5.7.7 **Parish Road, Cwmgwrach** (Figs. 2.30 & 2.31) **Low** **+6%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 94 mg/m^2/day and the average 37 mg/m^2/day, the corresponding values for 2012 were 69 and 35 mg/m^2/day respectively. There was a 6% increase in fallout rates compared to the previous year.

2.2.5.7.8 Llygad yr Haul, Glynneath (Figs. 2.32 & 2.33) **Low** **+9%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m2/day. The maximum fallout rate was 51 mg/m2/day and the average only 25 mg/m2/day, the corresponding values for 2012 were 64 and 23 mg/m2/day respectively. There was a 9% increase in fallout rates compared to the previous year.

2.2.5.7.9 Wembley Avenue, Onllwyn (Figs. 2.34 & 2.35) **Moderate** **+25%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 84 mg/m^2/day and the average 45 mg/m^2/day, the corresponding values for 2012 were 72 and 36 mg/m^2/day respectively. This represented an increase of 25%, which was mainly due to more coal fallout.

2.2.5.7.10 Little Warren, Port Talbot (Figs. 2.36 & 2.37) **Moderate** **No change**

The "nuisance limit" was not exceeded in 2013 and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 178 mg/m^2/day and the average 65 mg/m^2/day, the corresponding values for 2012 were 142 and 65 mg/m^2/day respectively. There was no change in fallout rates compared to the previous year.

2.2.5.7.11 Dyffryn School, Port Talbot (Figs. 2.38 & 2.39) **High** **+66%**

The "nuisance limit" was exceeded on 28 days during 2013 and there were no days within 10% of the "nuisance limit". There were no corresponding days exceeding the nuisance limit during 2012. The maximum fallout rate was 307 mg/m^2/day and the average 106 mg/m^2/day, and the corresponding values for 2012 were 117 and 64 mg/m^2/day respectively. There was a 66% increase in fallout rates compared to the previous year.

2.2.5.7.12 Cwmllynfell (Figs. 2.40 & 2.41) **High** **+163%**

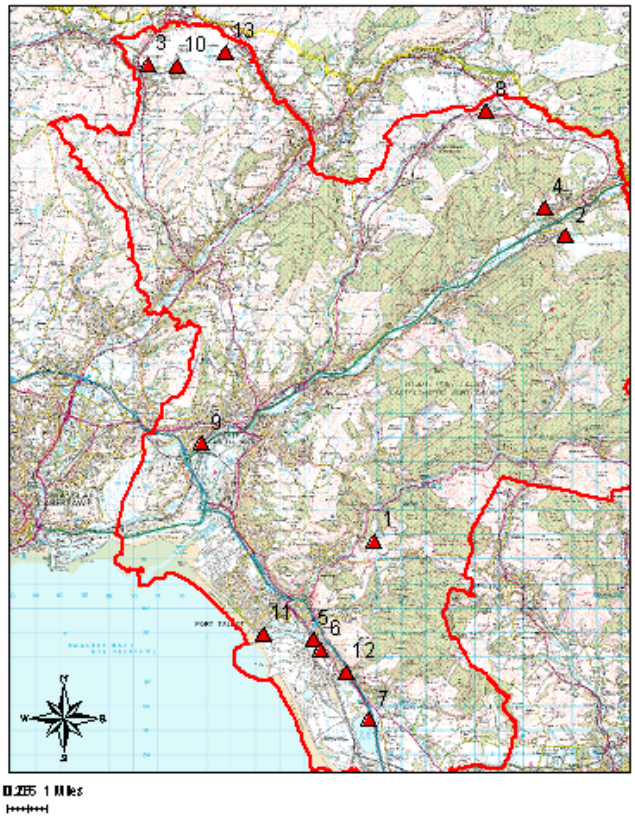
The "nuisance limit" was exceeded on 58 days during 2013 and there were 21 days within 10% of the "nuisance limit". The maximum fallout rate was 259 mg/m^2/day and the average 126 mg/m^2/day, and the corresponding values for 2012 were 81 and 48 mg/m^2/day respectively. There was an 163% increase in fallout rates compared to the previous year, which was mainly due to more dirt.

2.2.5.7.13 Summary

The sites at Prince Street and Port Talbot Fire Station remain as top ranked in terms of average fallout rate. In fact 2013 was a particularly poor year for both sites with fallout rates exceeding 600 and 500 mg/m^2/day respectively at times. Prince Street fallout rates were typically very near to the "nuisance limit" of 200 mg/m^2/day. Natural Resources Wales is the regulator for the steelworks and has been informed of these results.

A number of high results at the Cwmllynfell site have propelled it to 3rd place in the rankings. 2013 was the worst year to date at this rural site, which is located near to East Pit Opencast site which is regulated by the Council. These high fallout rates are not mirrored by PM_{10} measurements made by the operator. Provisions have been made for improved dust mitigation measures by Celtic Energy.

Figure 2.17 Deposit gauge locations



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 Resevoir, 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

Figure 2.18 Cil Carne Farm pie charts

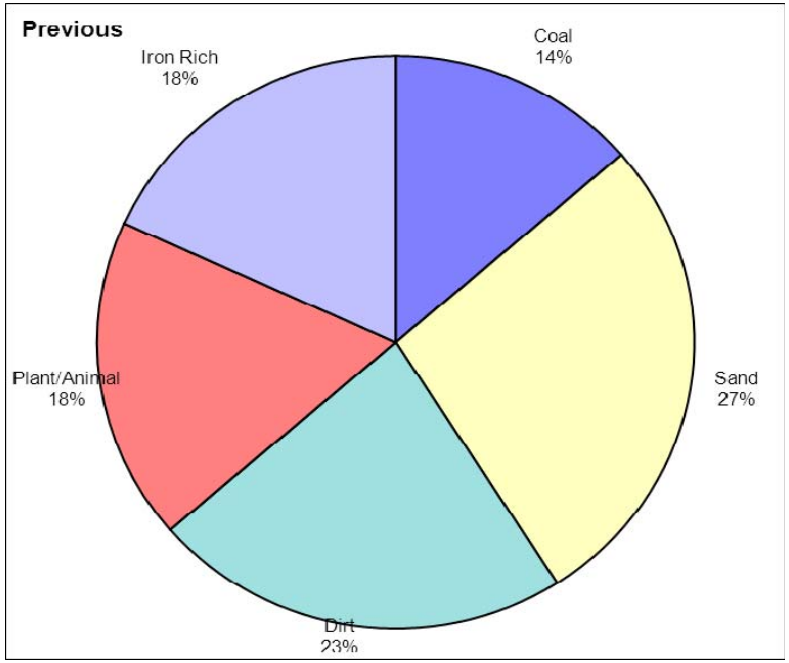
Deposit Gauge Analysis Report

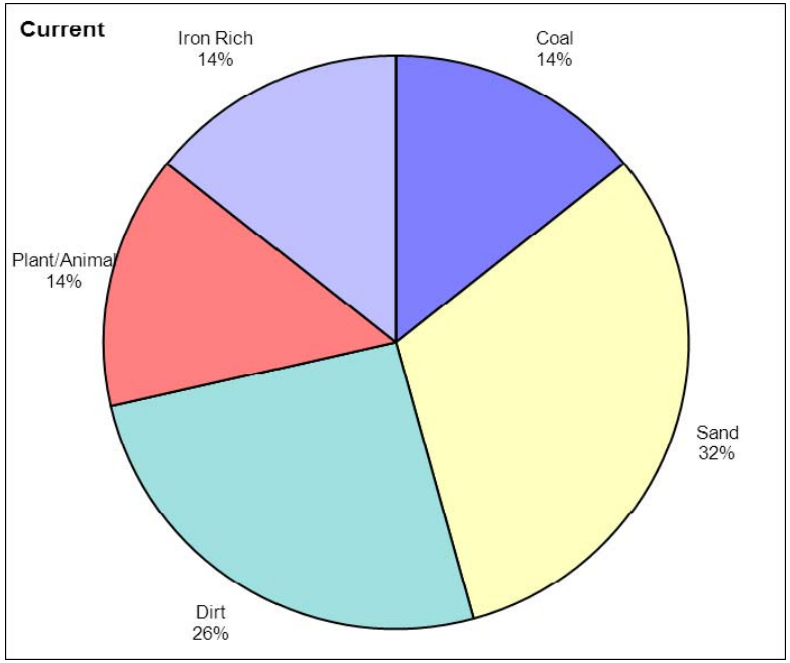
Cil Carne Farm, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	11	9	0	5	0	5	0
	Previous	3	0	6	5	0	4	0	4	0

Figure 2.19 Cil Carne Farm fallout rates

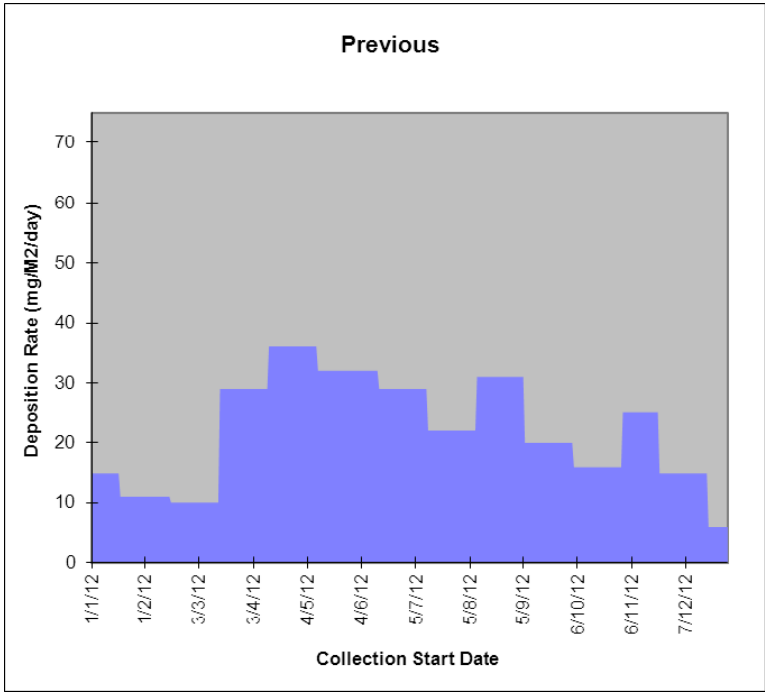
Deposit Gauge Analysis Report

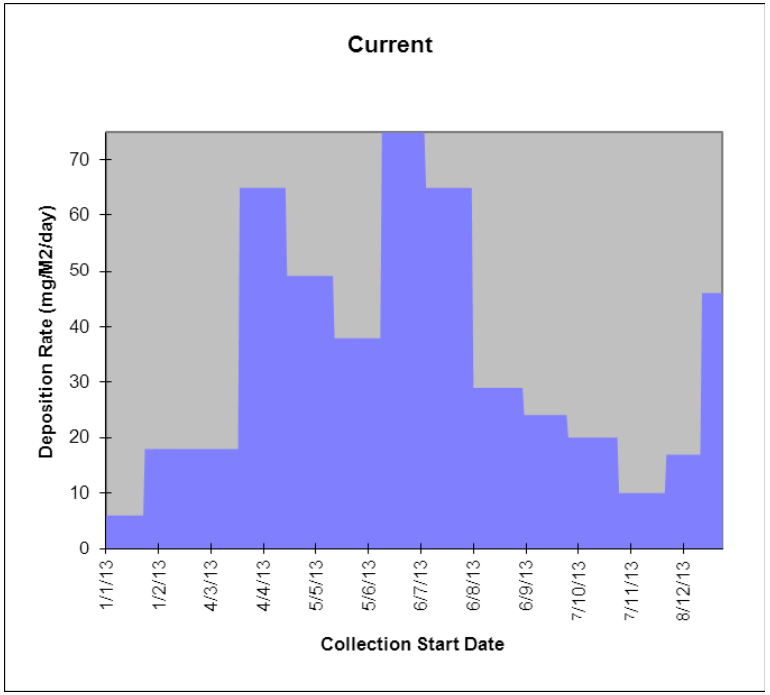
Cil Carne Farm, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	34	75	13	100.0	0	0
Previous	22	36	13	100.0	0	0
Change	12	Increase 55%				

Figure 2.20 Prince Street pie charts

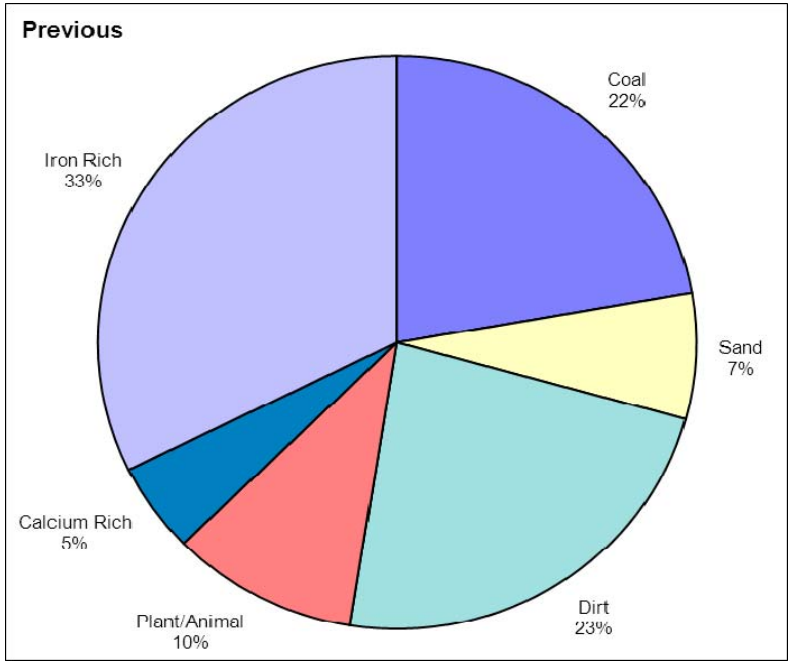
Deposit Gauge Analysis Report

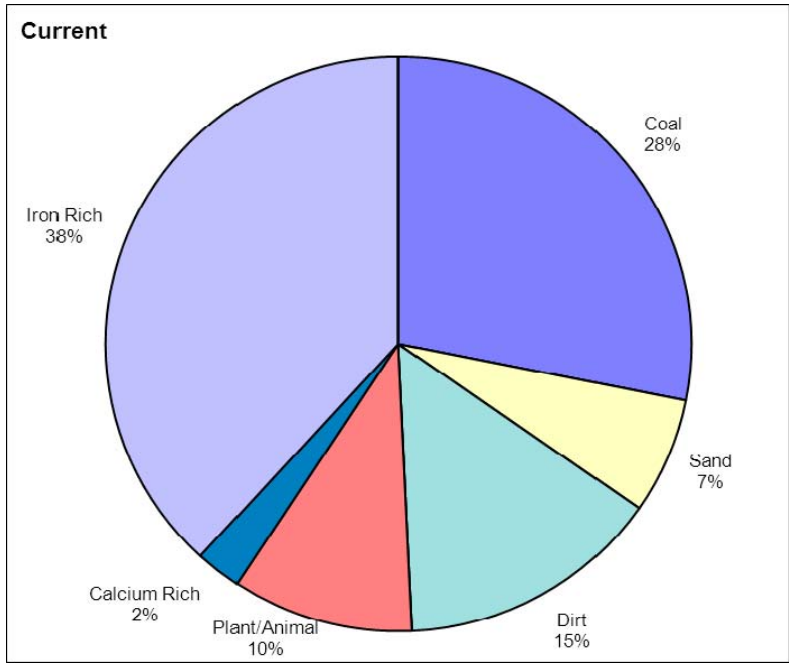
24, Prince Street, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	56	0	13	29	0	20	5	76	0
	Previous	22	0	7	23	0	10	5	32	0

Figure 2.21 Prince Street fallout rates

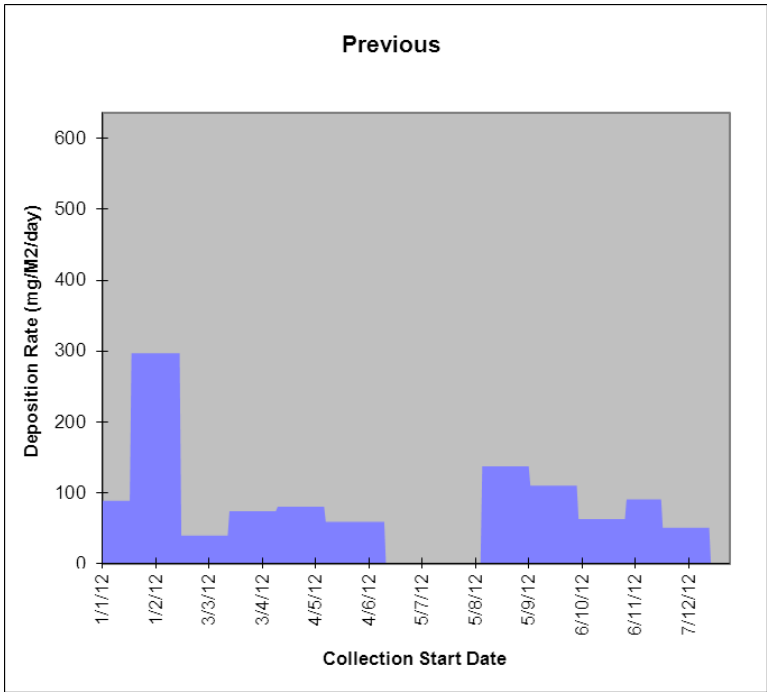
Deposit Gauge Analysis Report

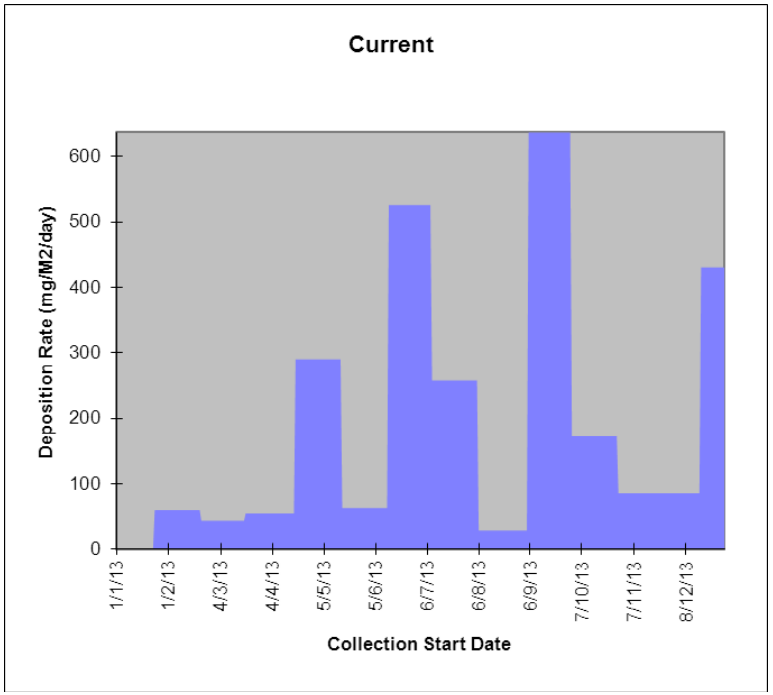
24, Prince Street, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	199	636	13	93.7	0	123
Previous	99	297	10	81.0	0	29
Change	100	Increase 101%				

Figure 2.22 Port Talbot Fire Station pie charts

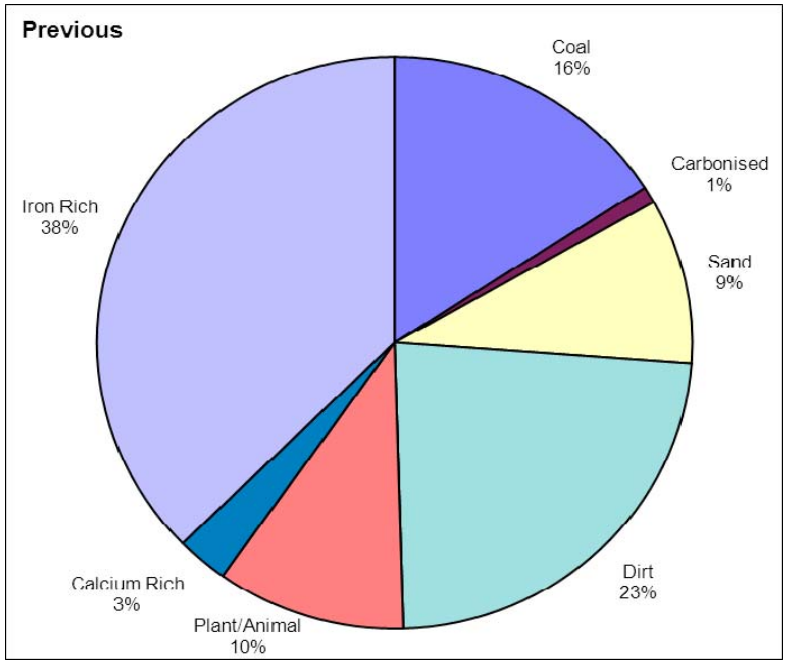
Deposit Gauge Analysis Report

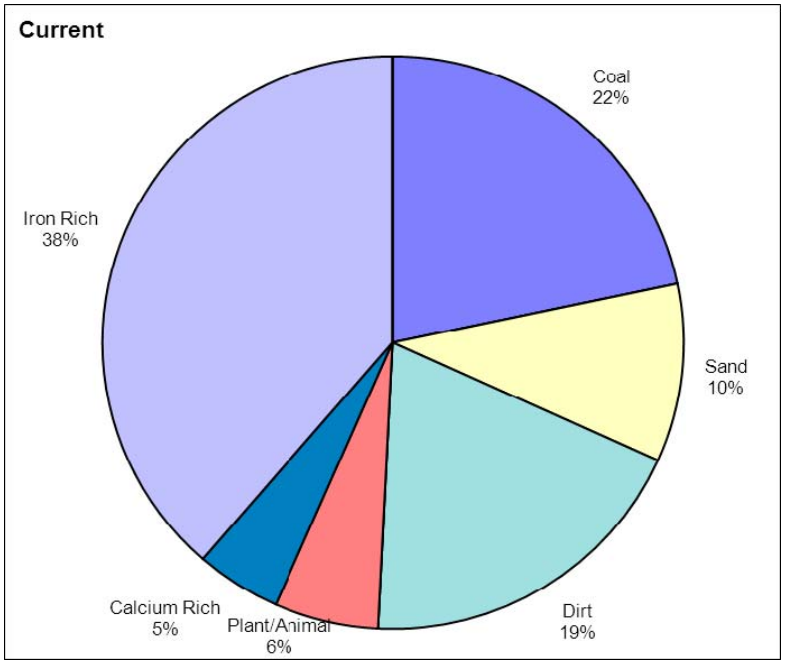
Port Talbot Fire Station

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	41	0	19	36	0	11	9	73	0
	Previous	17	1	10	25	0	11	3	40	0

Figure 2.23 Port Talbot Fire Station fallout rates

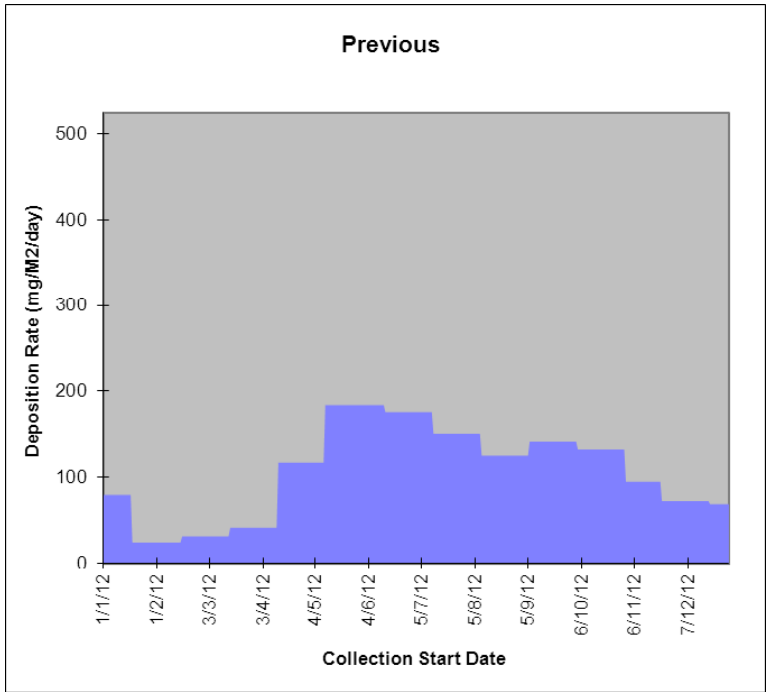
Deposit Gauge Analysis Report

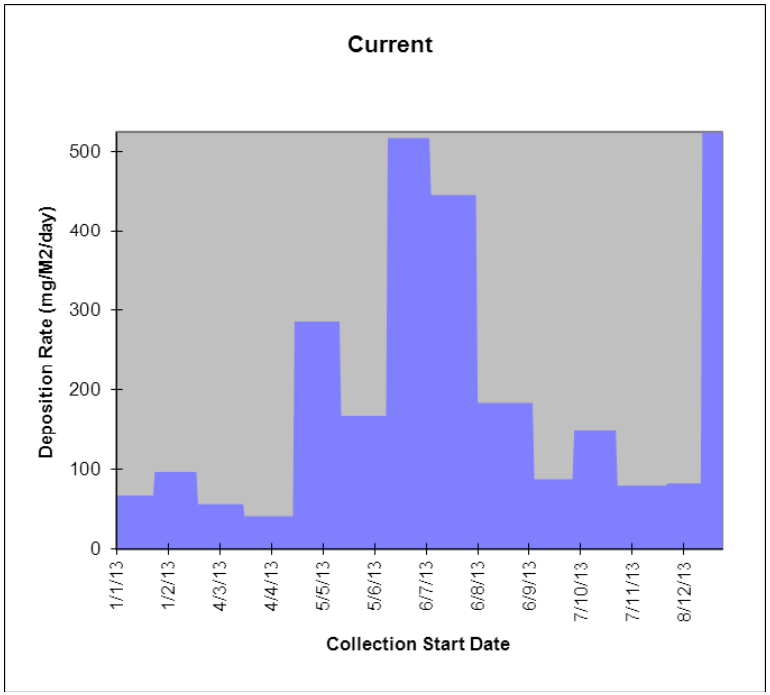
Port Talbot Fire Station

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	188	524	13	100.0	34	95
Previous	106	184	13	100.0	35	0
Change	82	Increase 77%				

Figure 2.24 Eglwys Nunydd Reservoir pie charts

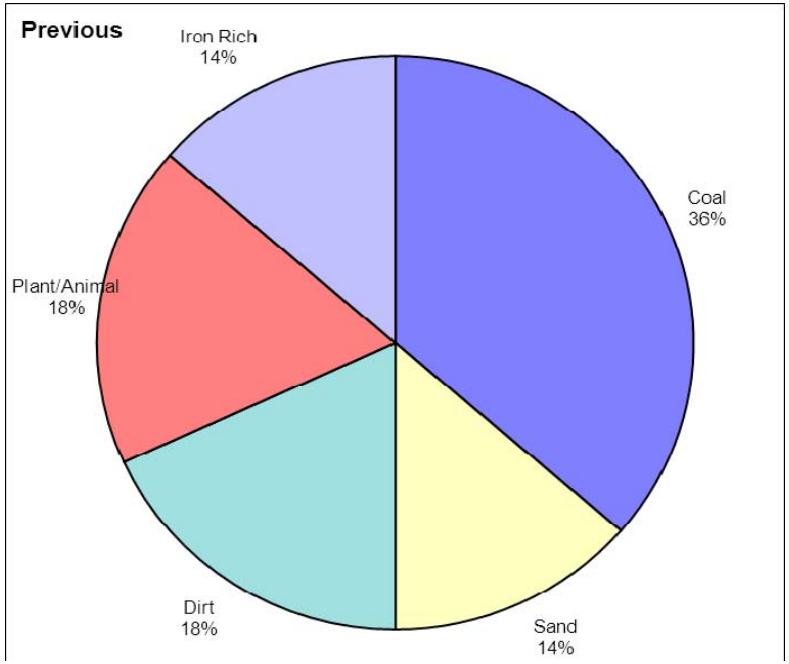
Deposit Gauge Analysis Report

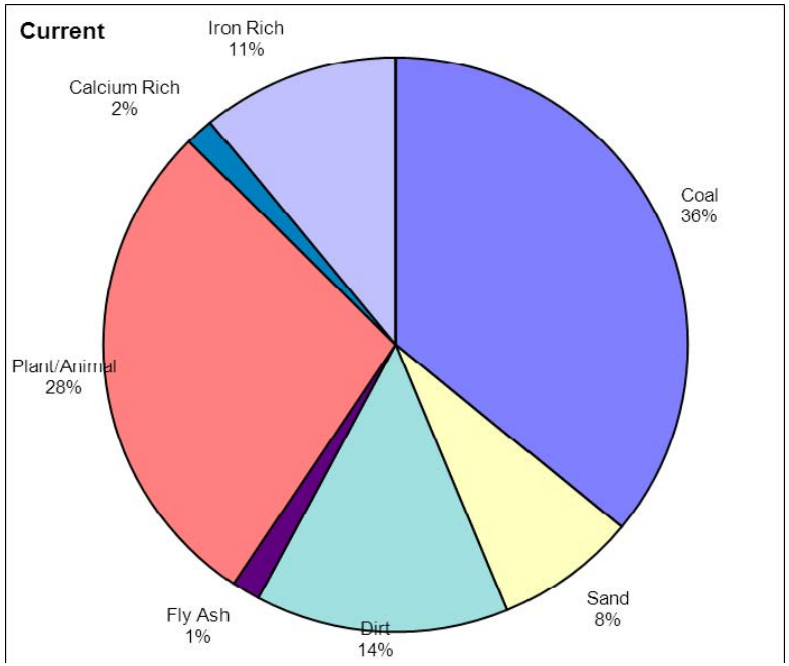
Eglwys Nunydd Reservoir, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	5	9	1	18	1	7	0
	Previous	16	0	6	8	0	8	0	6	0

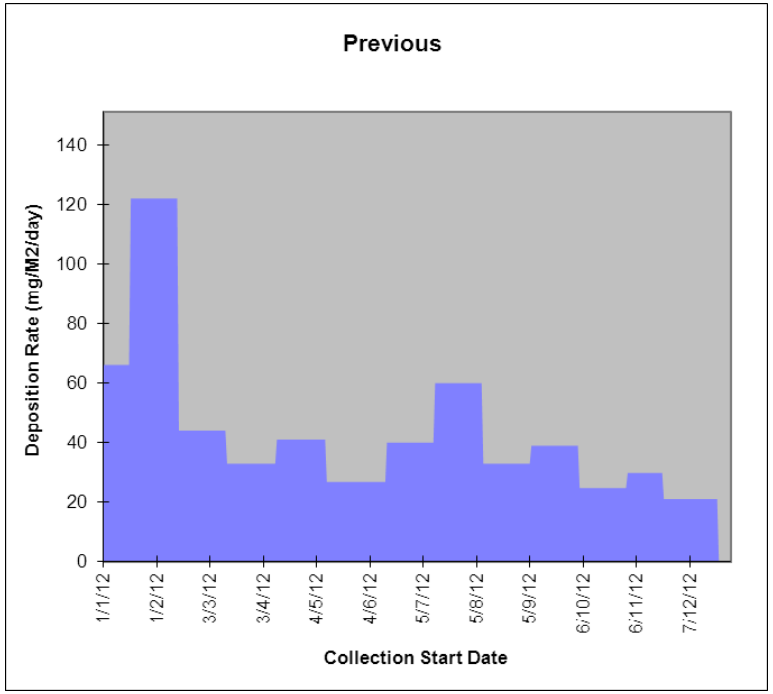
Figure 2.25 Eglwys Nunydd fallout rates

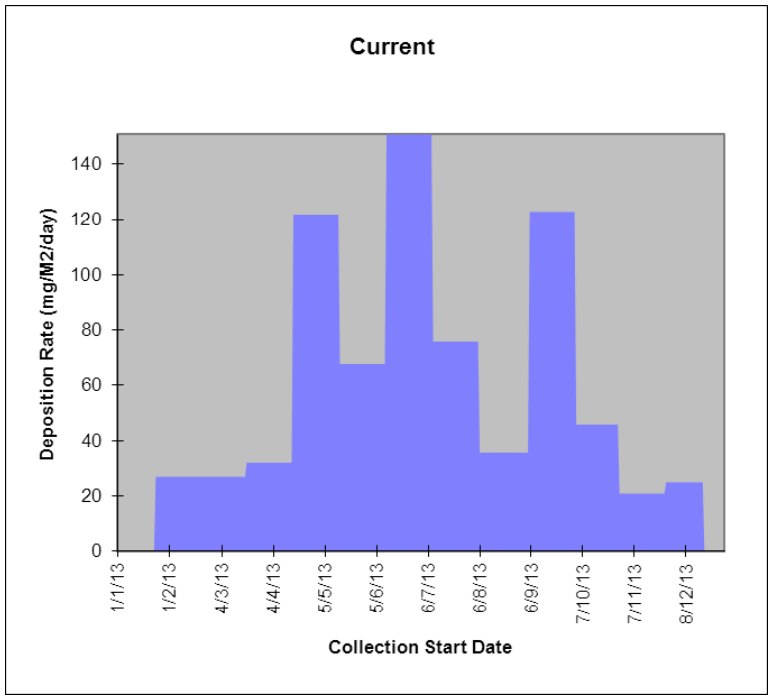
Deposit Gauge Analysis Report

Eglwys Nunydd Resevoir, Port Talbot

Comparison of Fallout Rate with Time

Current Period	=	01-Jan-13	to	31-Dec-13
Previous Period	=	01-Jan-12	to	31-Dec-12





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	64	151	12	90.1	0	0
Previous	44	122	12	97.8	0	0
Change	20	Increase 45%				

Figure 2.26 Gwaen Cae Gurwen pie charts

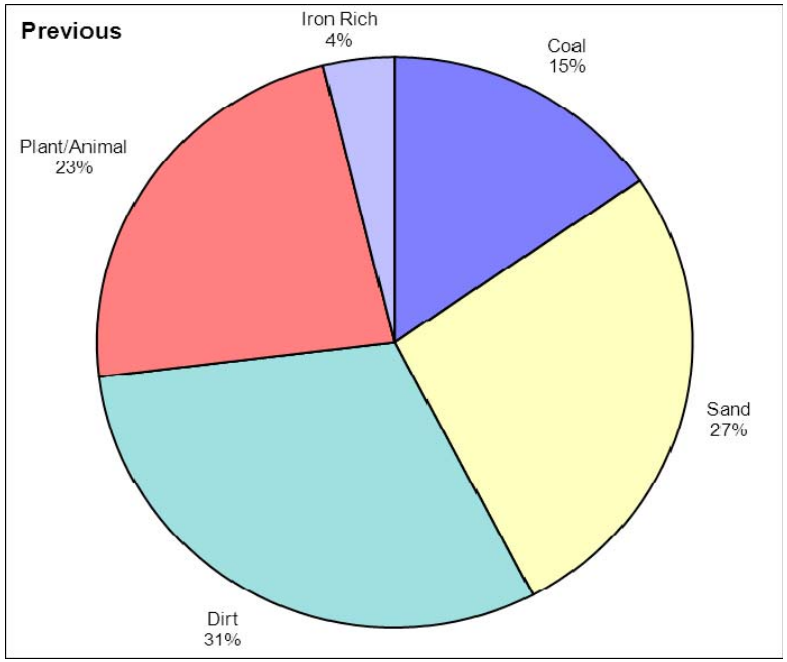
Deposit Gauge Analysis Report

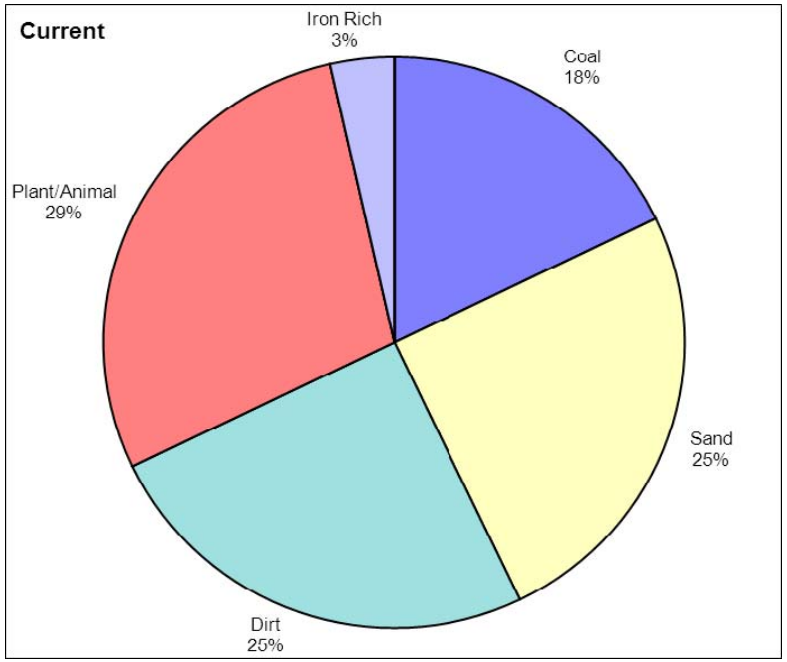
Primary School, Gwaen Cae Gurwen

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	7	7	0	8	0	1	0
	Previous	4	0	7	8	0	6	0	1	0

Figure 2.27 Gwaen Cae Gurwen fallout rates

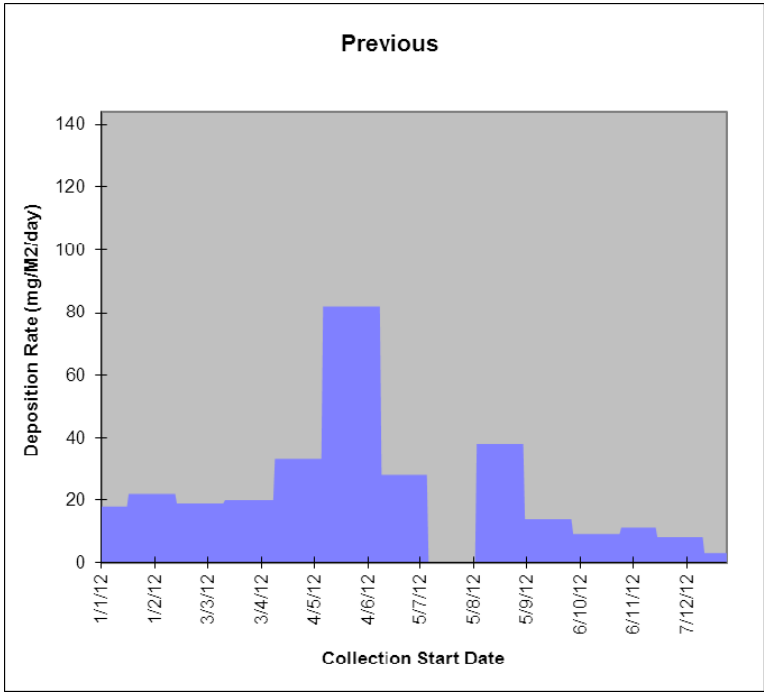
Deposit Gauge Analysis Report

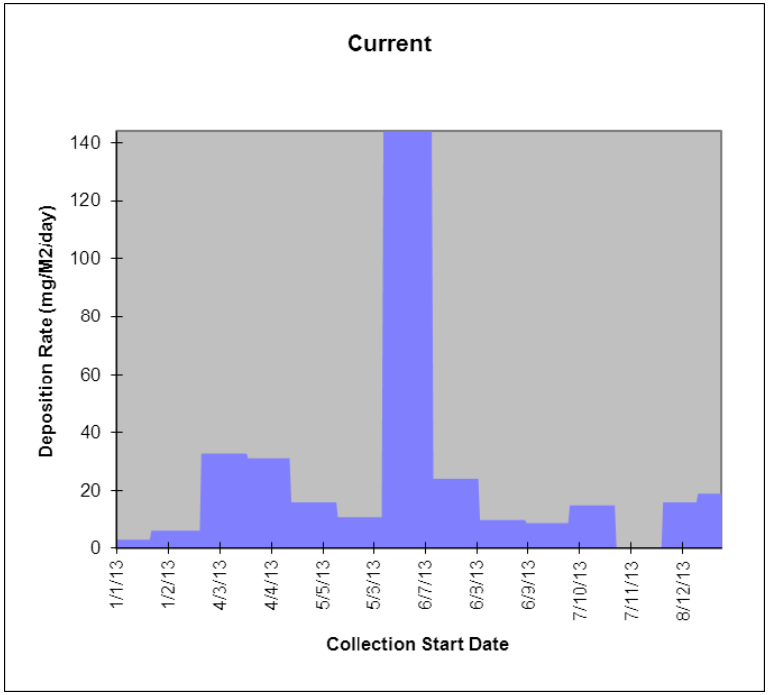
Primary School, Gwaen Cae Gurwen

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	28	144	12	92.3	0	0
Previous	26	82	12	92.1	0	0
Change	2	Increase 8%				

Figure 2.28 Tairgwaith pie charts

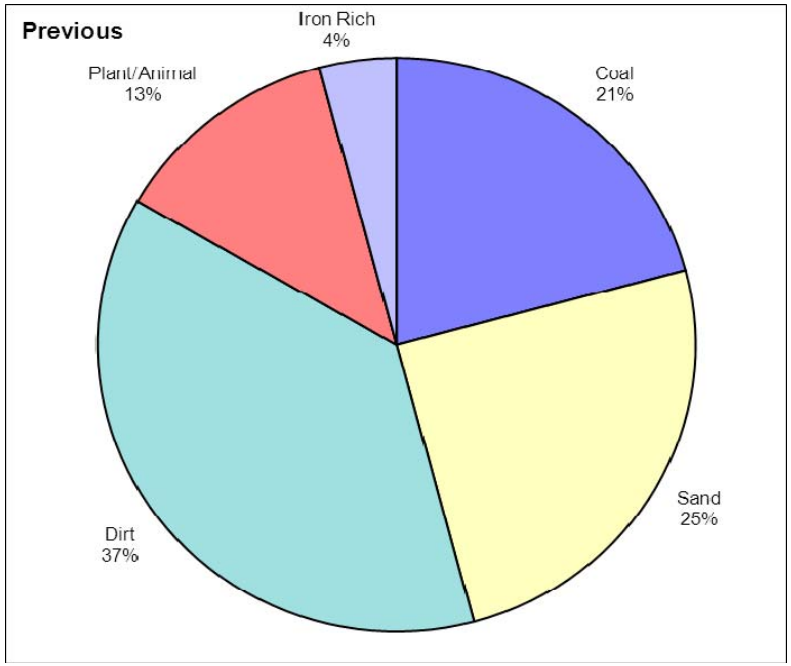
Deposit Gauge Analysis Report

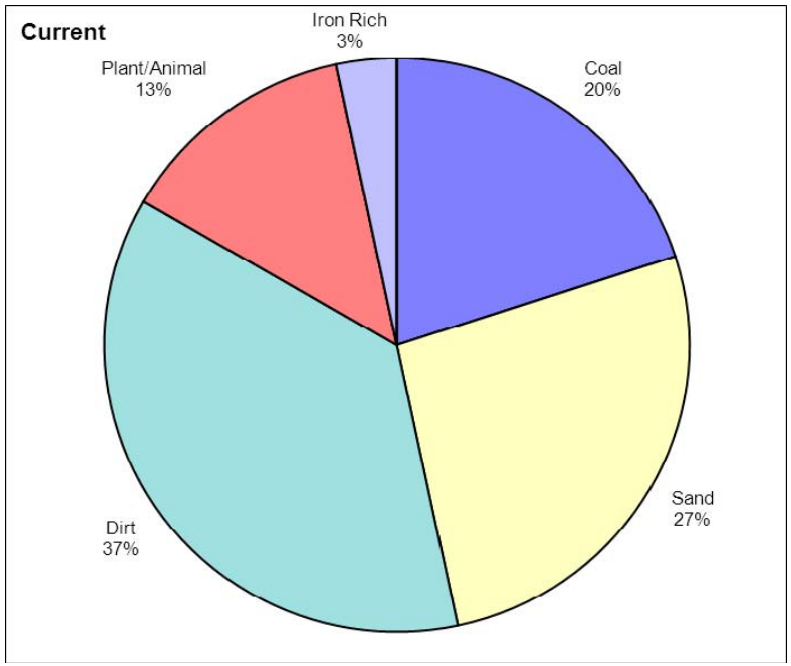
Workingmens Club, Tairgwaith

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	8	11	0	4	0	1	0
	Previous	5	0	6	9	0	3	0	1	0

Figure 2.29 Tairgwaith fallout rates

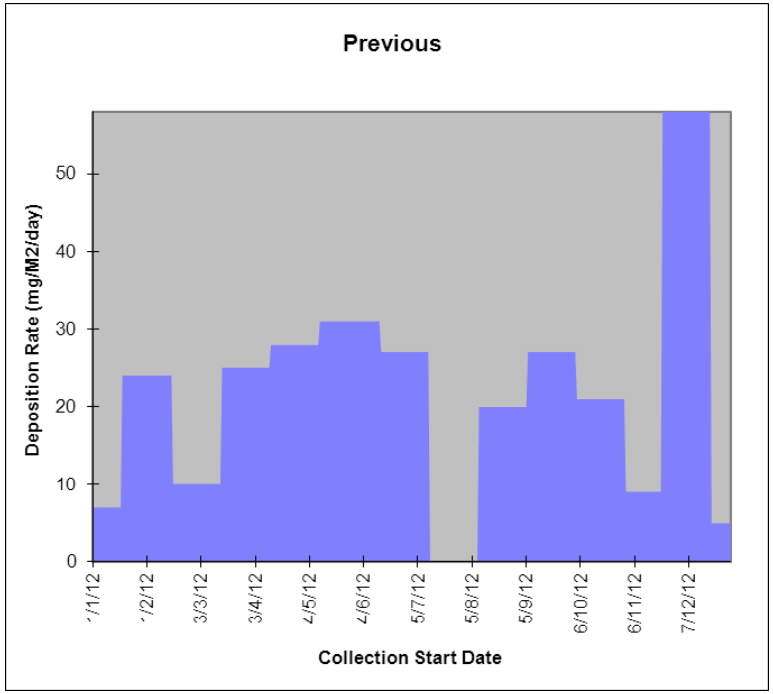
Deposit Gauge Analysis Report

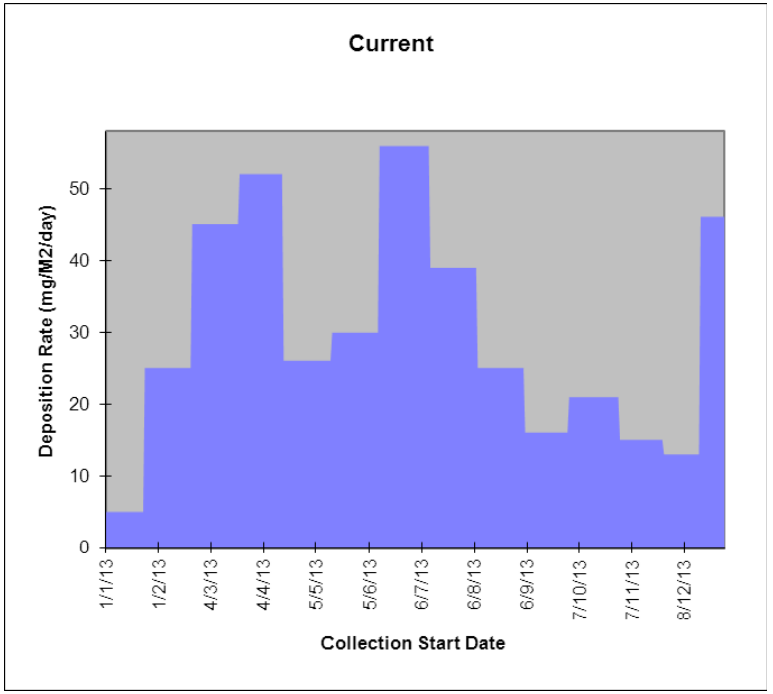
Workingmens Club, Tairgwaith

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	30	56	13	100.0	0	0
Previous	24	58	12	92.1	0	0
Change	6	Increase 25%				

Figure 2.30 Cwmgwrach pie charts

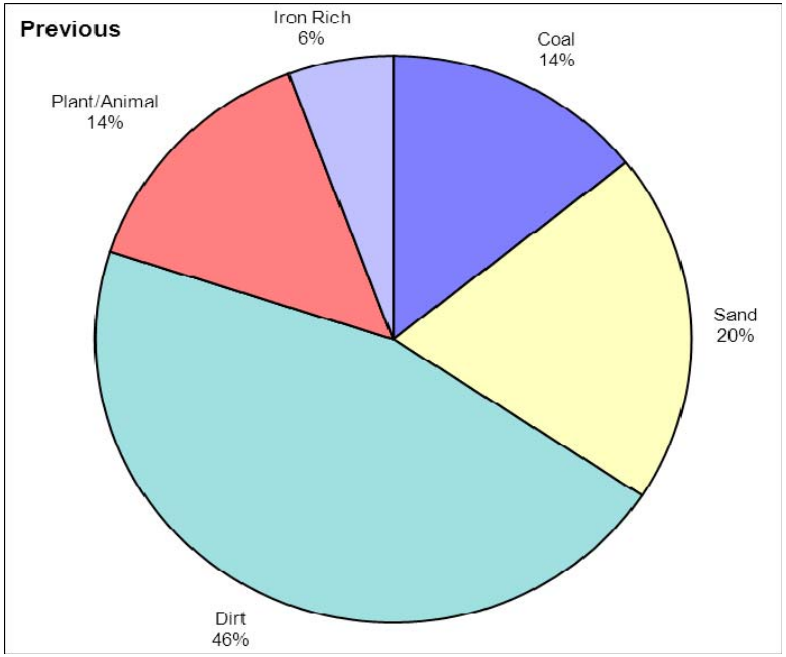
Deposit Gauge Analysis Report

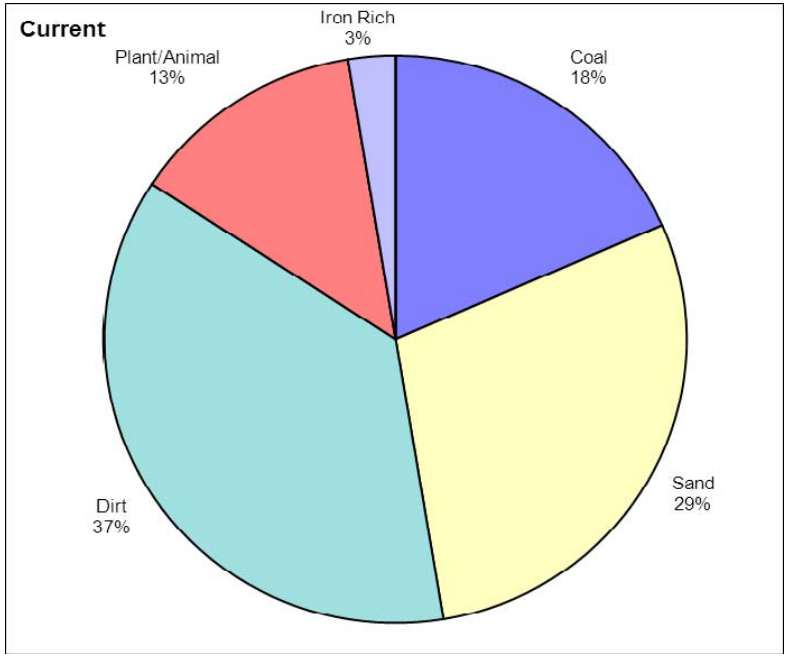
41, Parish Road, Cwmgwrach

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	11	14	0	5	0	1	0
	Previous	5	0	7	16	0	5	0	2	0

Figure 2.31 Cwmgwrach fallout rates

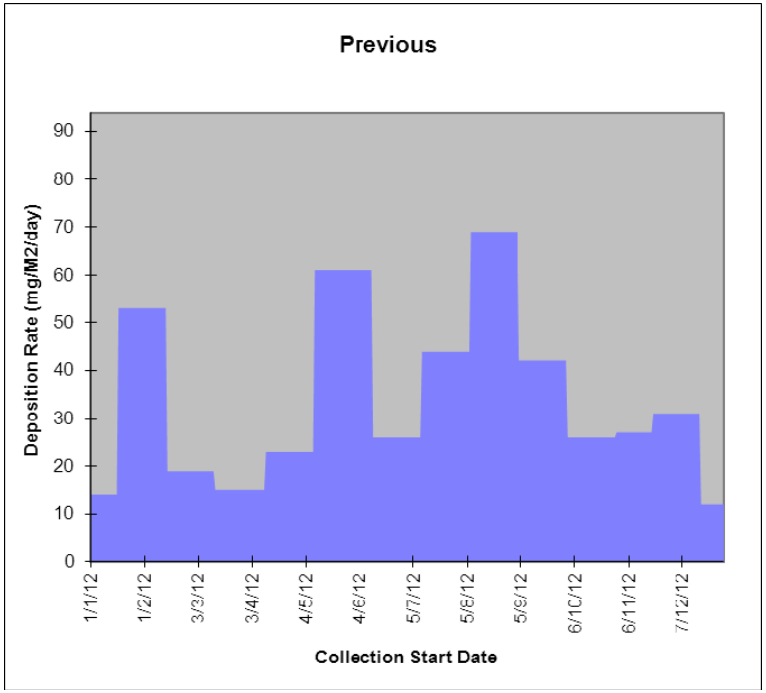
Deposit Gauge Analysis Report

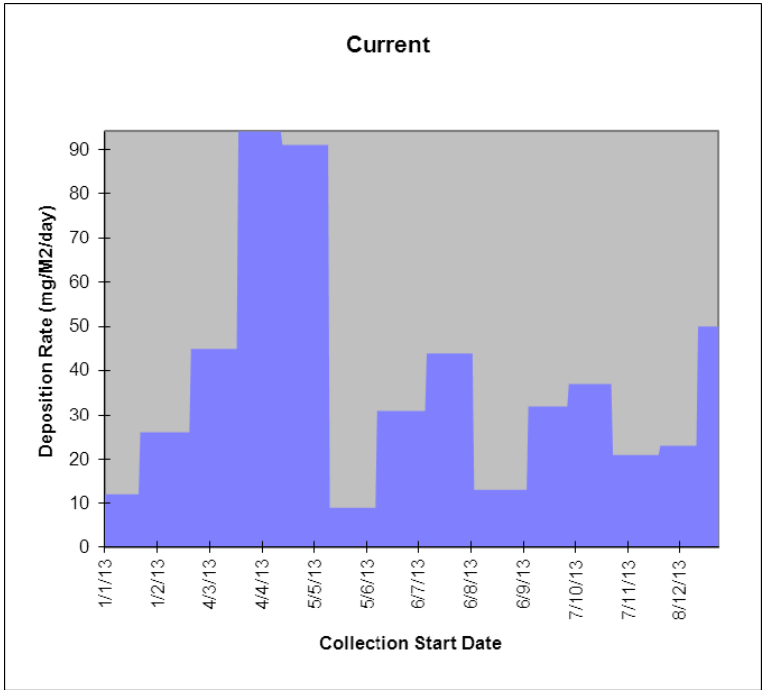
41, Parish Road, Cwmgwrach

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	37	94	13	100.0	0	0
Previous	35	69	13	100.0	0	0
Change	2	Increase 6%				

Figure 2.32 Glynneath pie charts

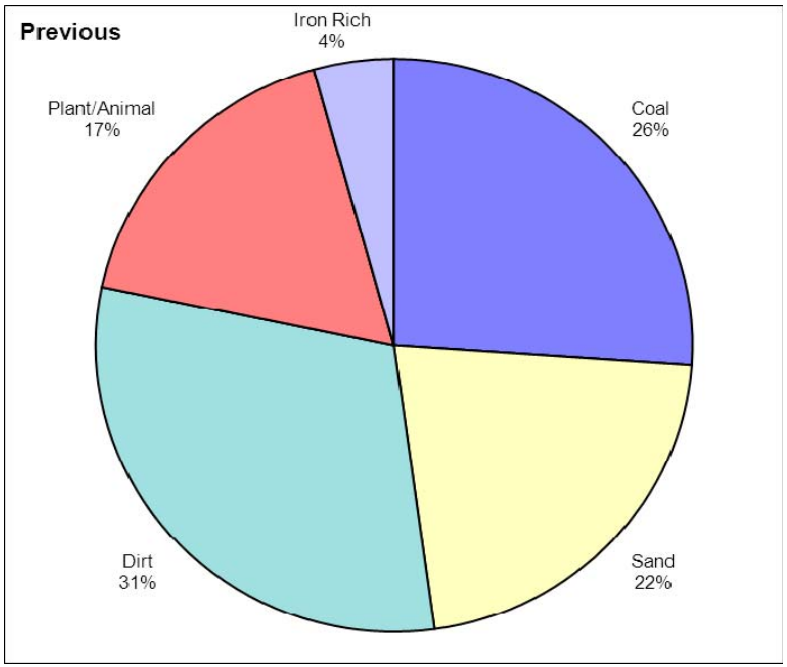
Deposit Gauge Analysis Report

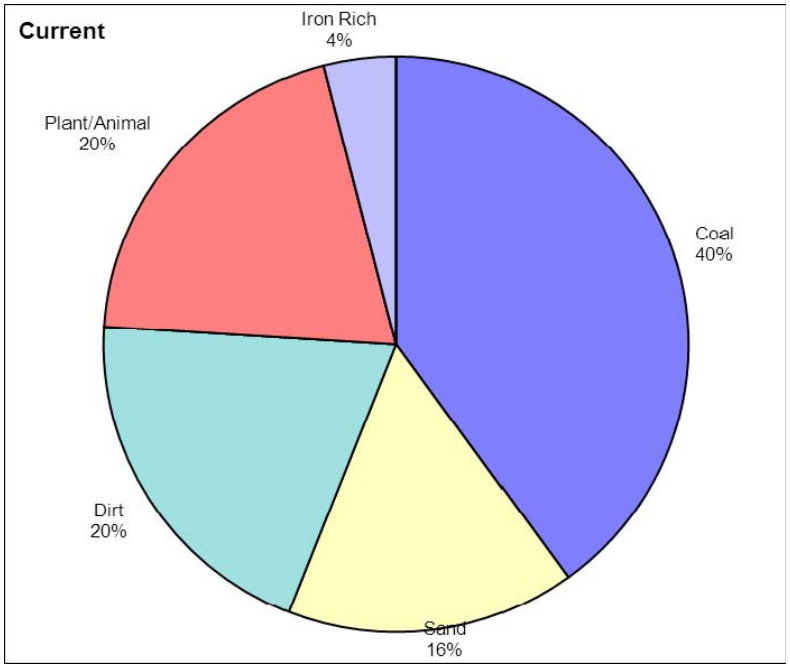
2, Llygad Yr Haul, Glynneath

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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

Figure 2.33 Glynneath fallout rates

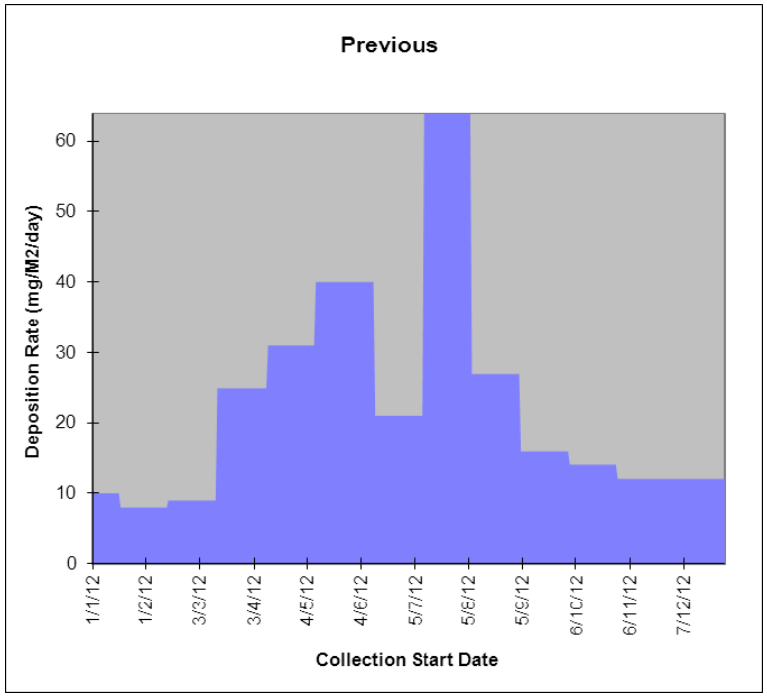
Deposit Gauge Analysis Report

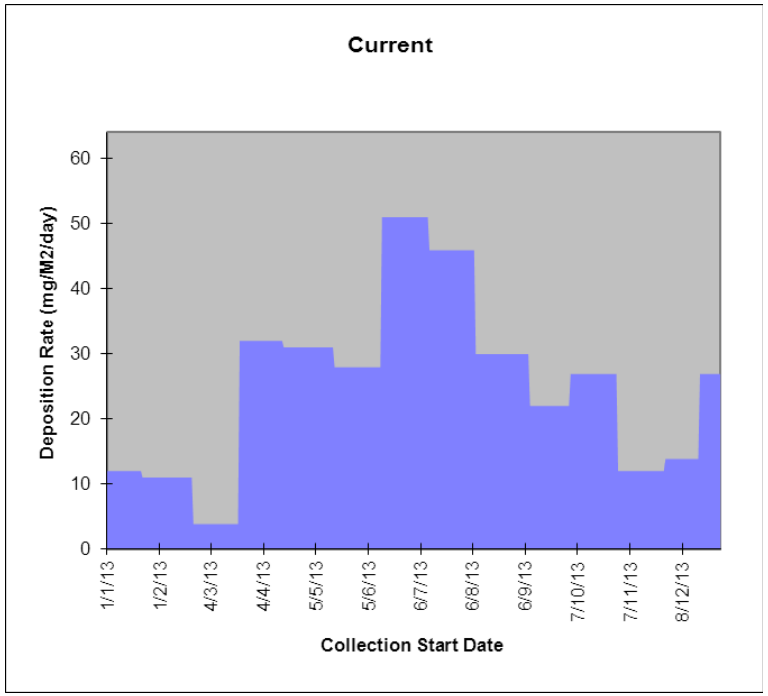
2, Llygad Yr Haul, Glynneath

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	25	51	13	100.0	0	0
Previous	23	64	13	100.0	0	0
Change	2	Increase 9%				

Figure 2.34 Onllwyn pie charts

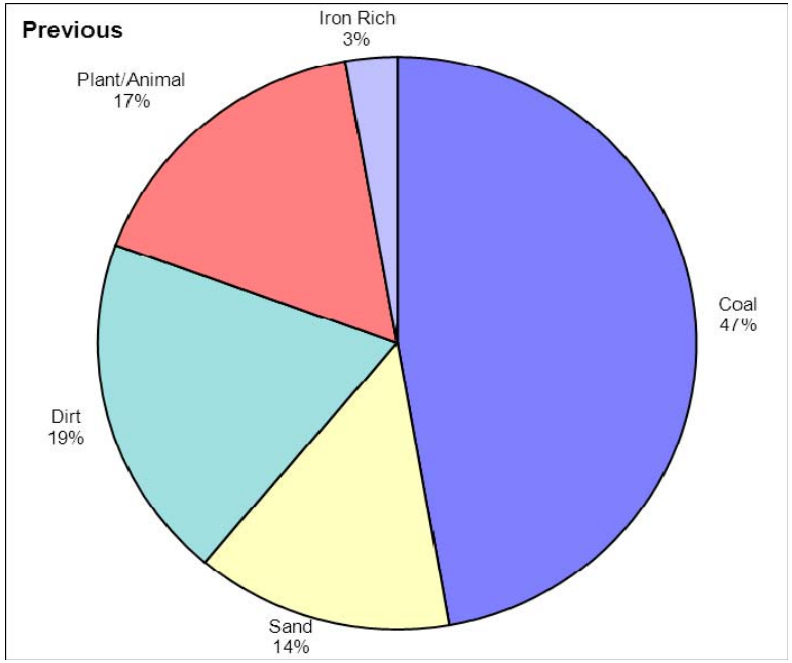
Deposit Gauge Analysis Report

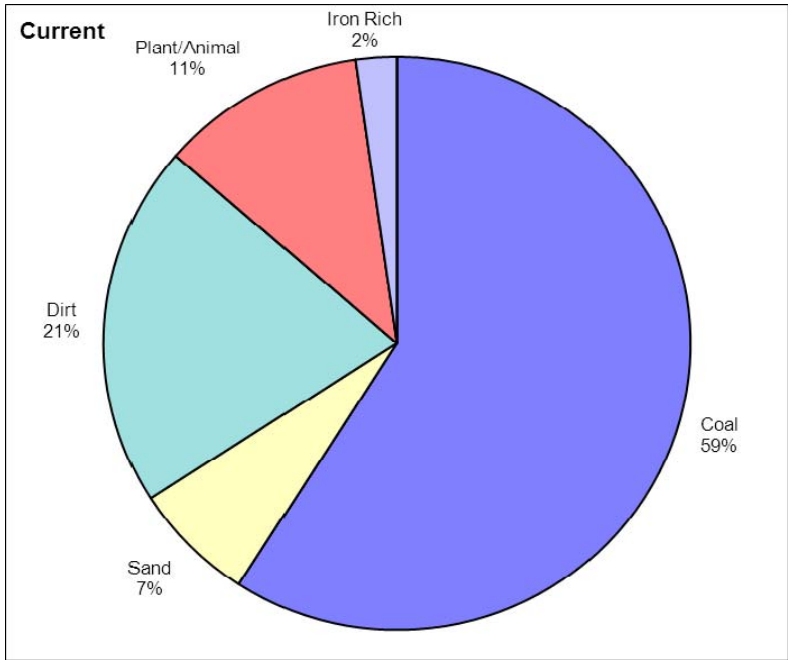
11, Wembley Avenue, Onllwyn

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	26	0	3	9	0	5	0	1	0
	Previous	17	0	5	7	0	6	0	1	0

Figure 2.35 Onllwyn fallout rates

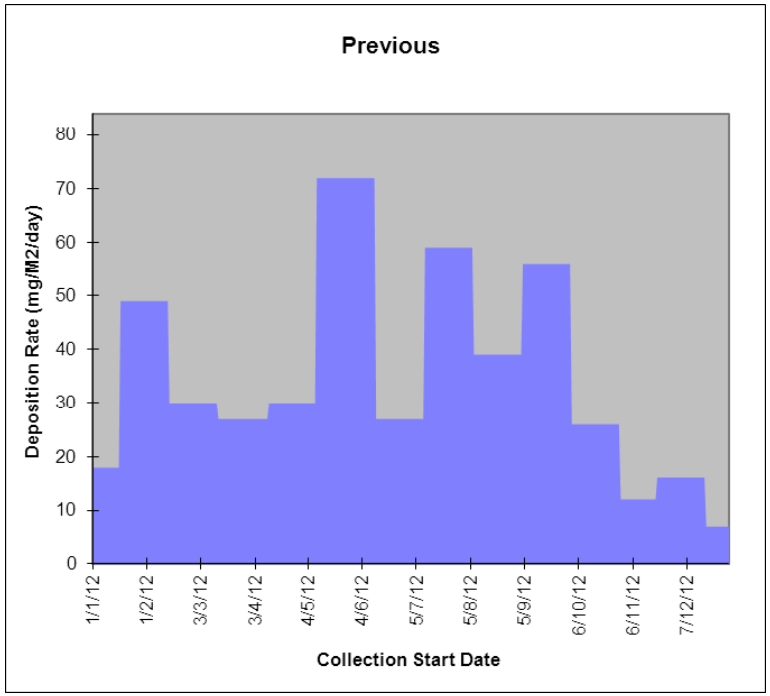
Deposit Gauge Analysis Report

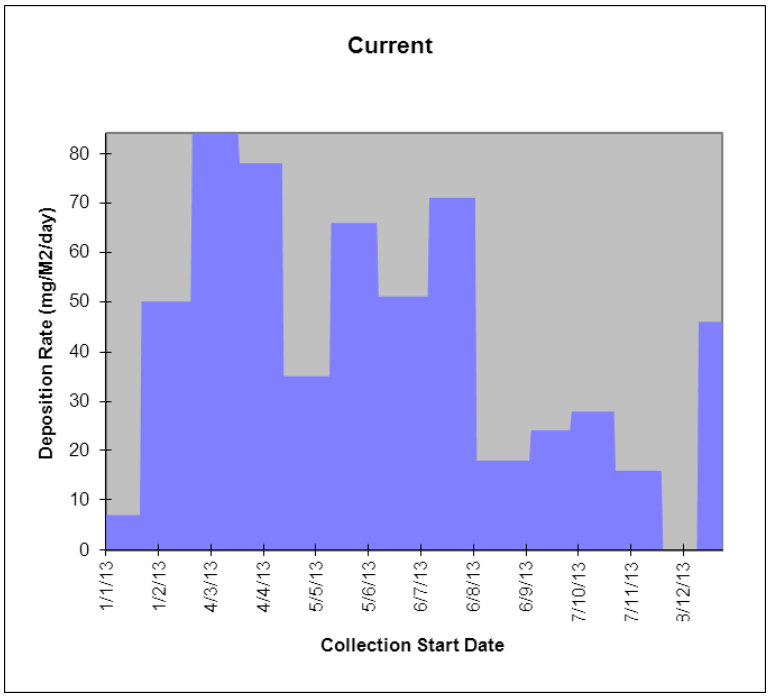
11, Wembley Avenue, Onllwyn

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	45	84	12	94.2	0	0
Previous	36	72	13	100.0	0	0
Change	9	Increase 25%				

Figure 2.36 Little Warren pie charts

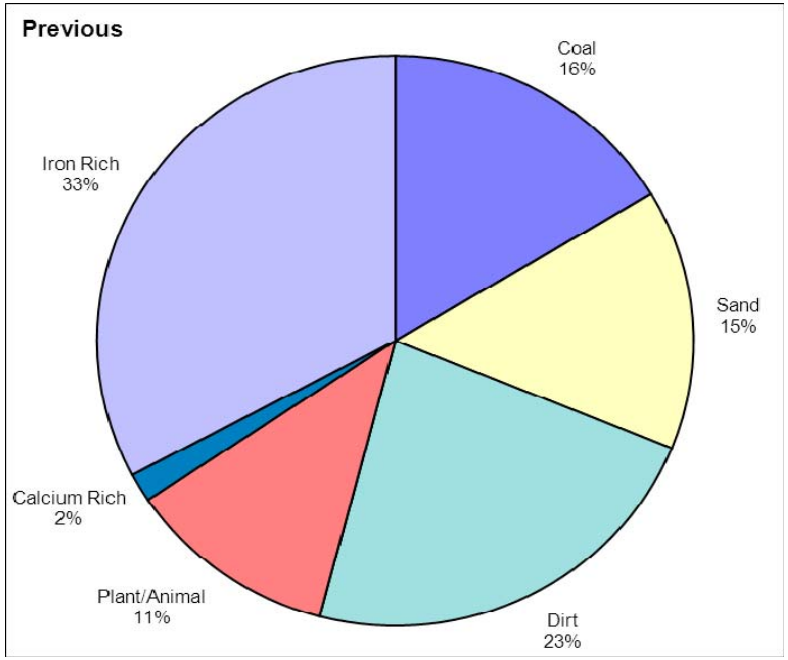
Deposit Gauge Analysis Report

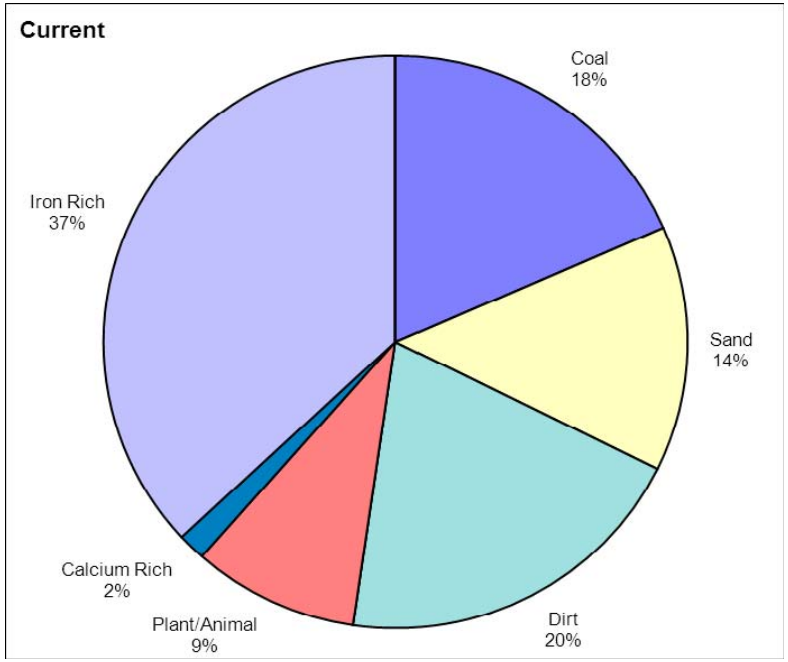
Little Warren, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	12	0	9	13	0	6	1	24	0
	Previous	10	0	9	14	0	7	1	20	0

Figure 2.37 Little Warren fallout rates

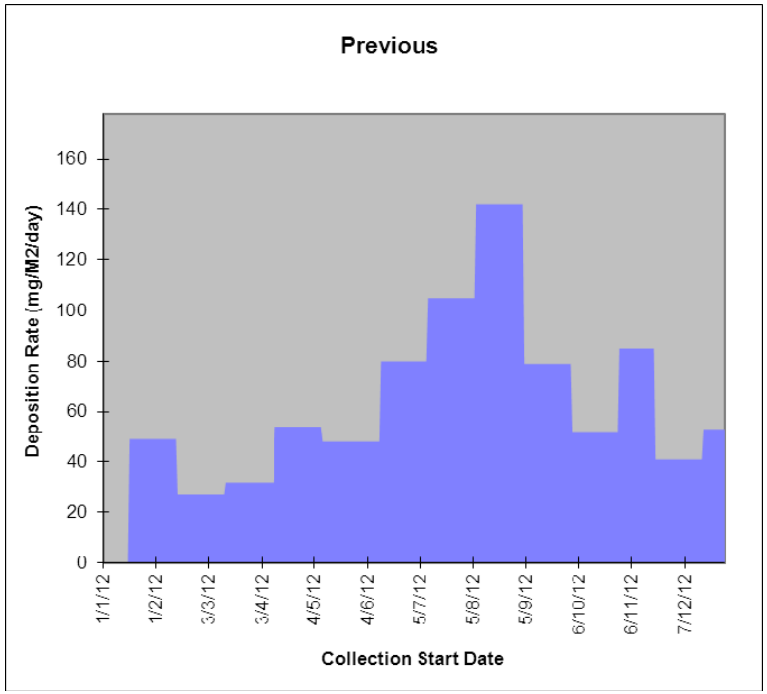
Deposit Gauge Analysis Report

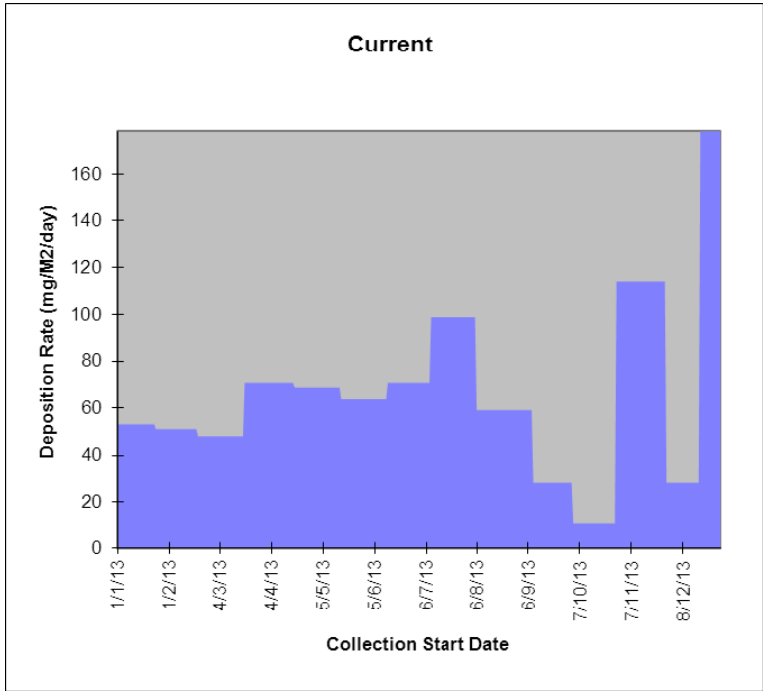
Little Warren, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	65	178	13	100.0	0	0
Previous	65	142	13	98.3	0	0
Change	0					

Figure 2.38 Dyffryn School pie charts

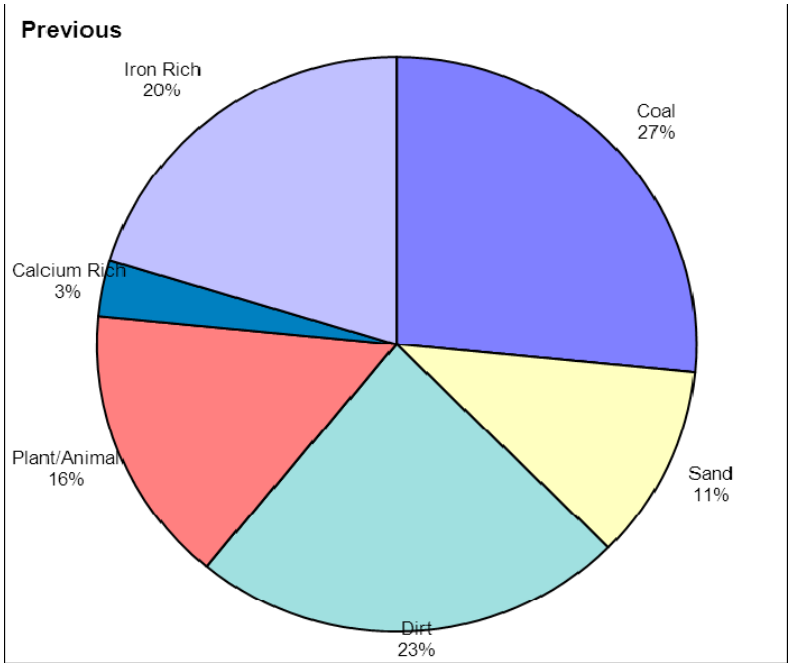
Deposit Gauge Analysis Report

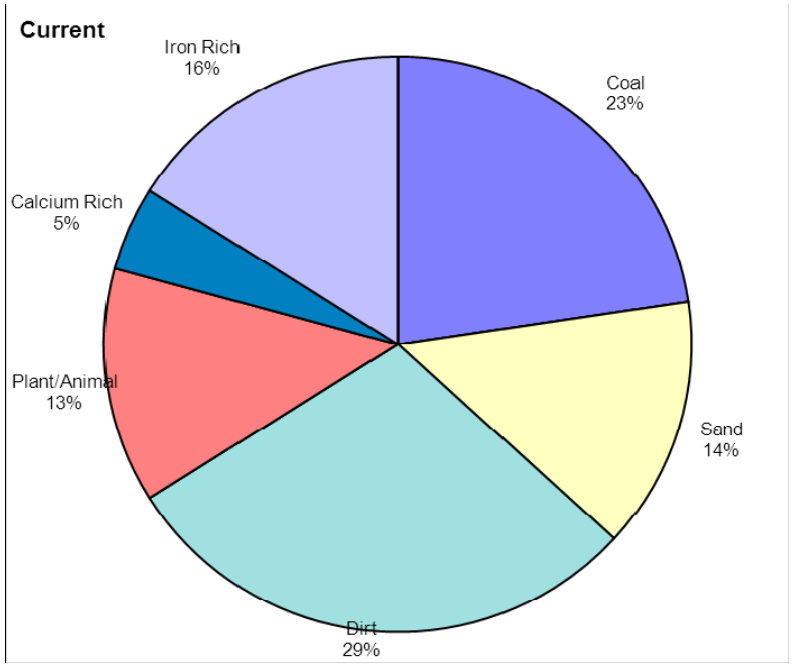
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	24	0	15	31	0	14	5	17	0
	Previous	17	0	7	15	0	10	2	13	0

Figure 2.39 Dyffryn School fallout rates

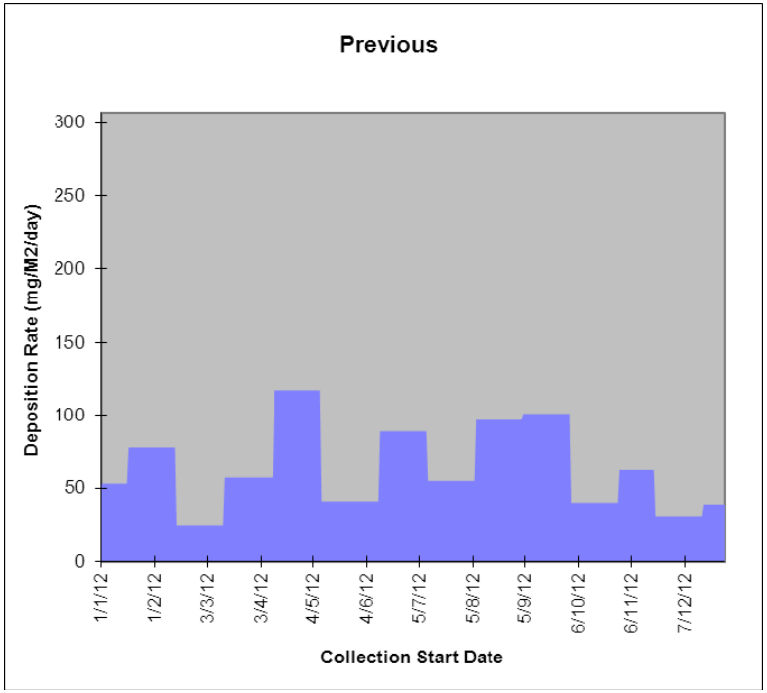
Deposit Gauge Analysis Report

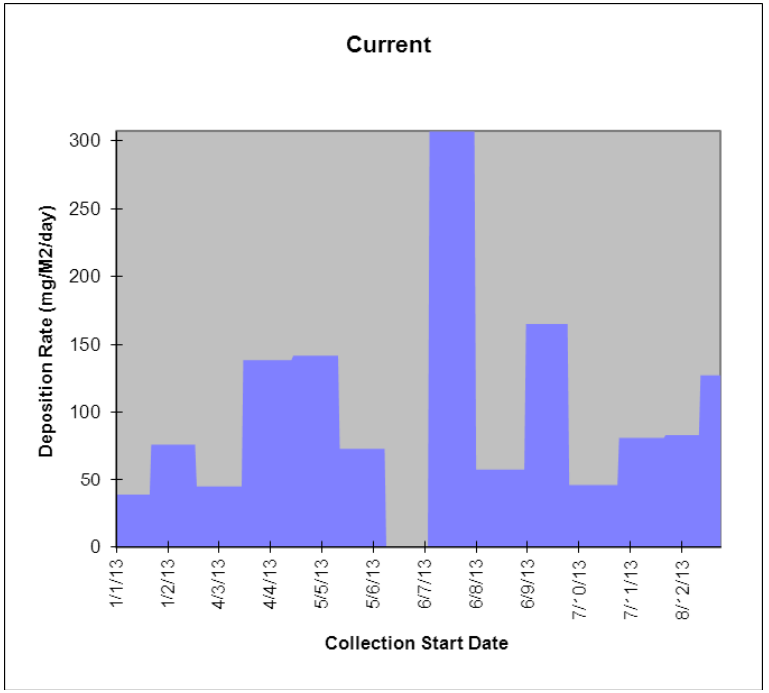
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	106	307	12	92.9	0	28
Previous	64	117	13	100.0	0	0
Change	42	Increase 66%				

Figure 2.40 Cwmllynfell pie charts

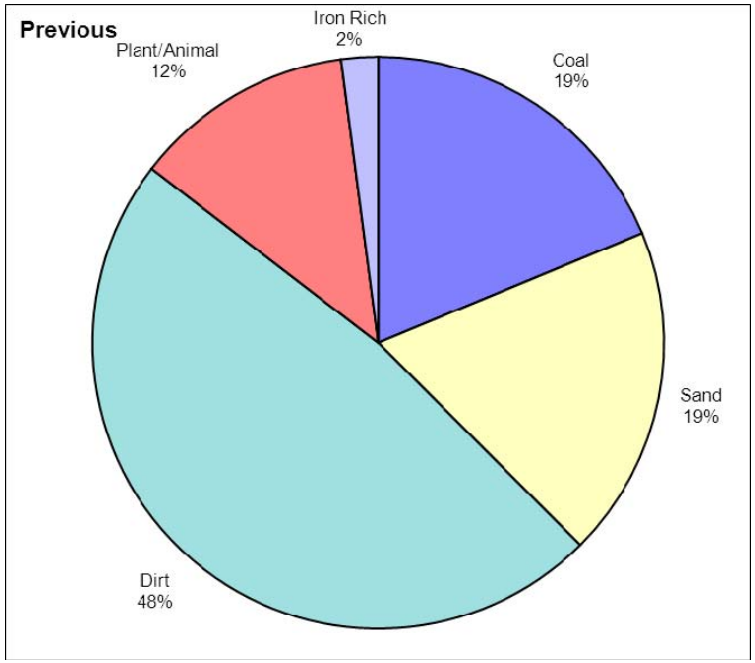
Deposit Gauge Analysis Report

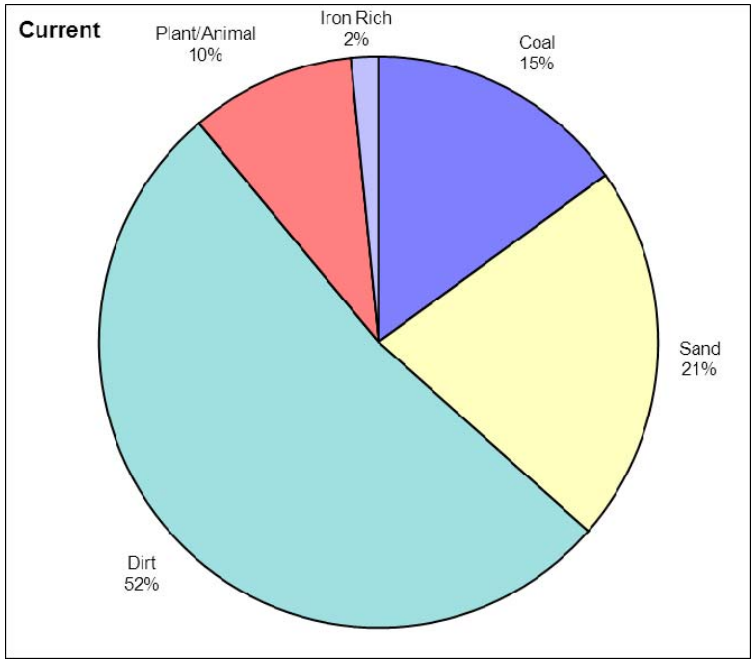
Cwmllynfell

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	19	0	27	66	0	12	0	2	0
	Previous	9	0	9	23	0	6	0	1	0

Figure 2.41 Cwmllynfell fallout rates

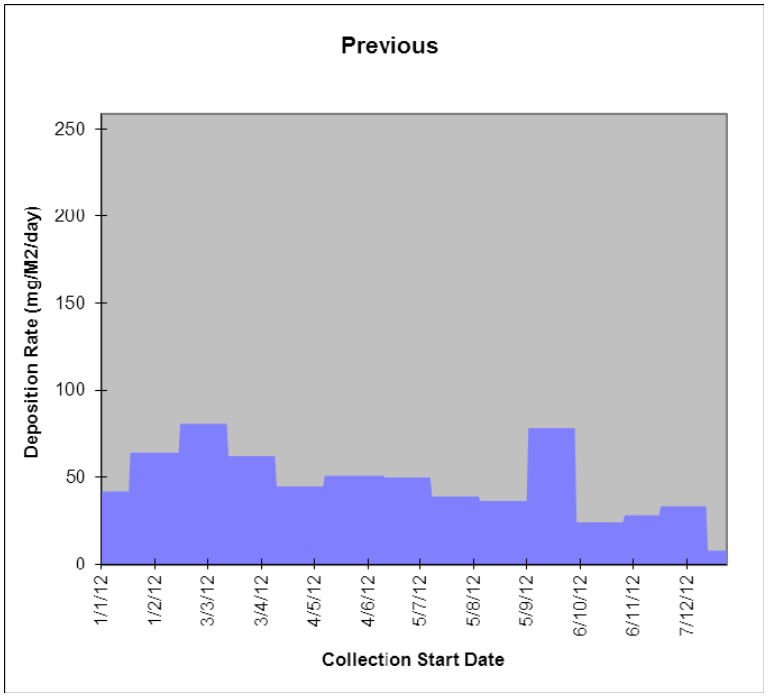
Deposit Gauge Analysis Report

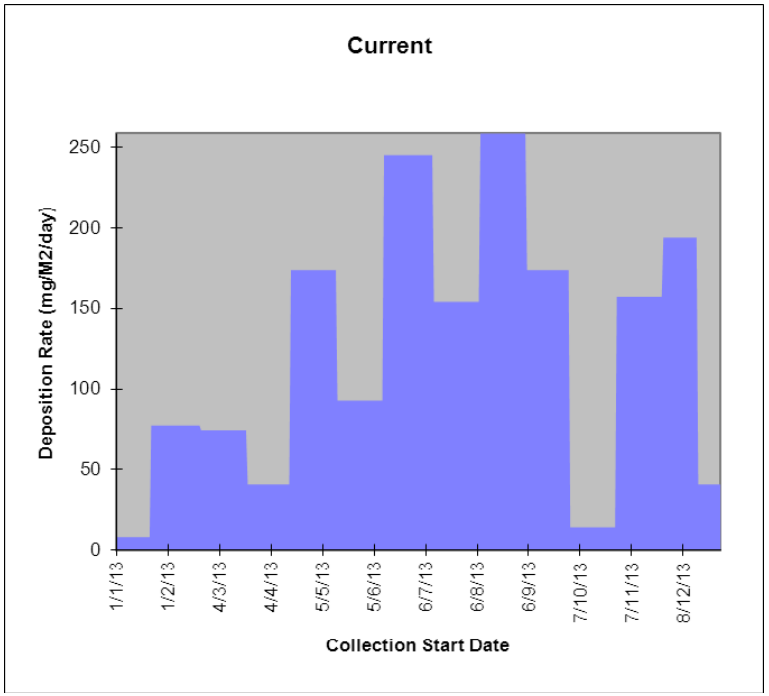
Cwmllynfell

Comparison of Fallout Rate with Time

Current Period = 01-Jan-13 to 31-Dec-13

Previous Period = 01-Jan-12 to 31-Dec-12





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	126	259	13	100.0	21	58
Previous	48	81	13	100.0	0	0
Change	78	Increase 163%				

Figure 2.42 Comparison of average fallout rates, 2013

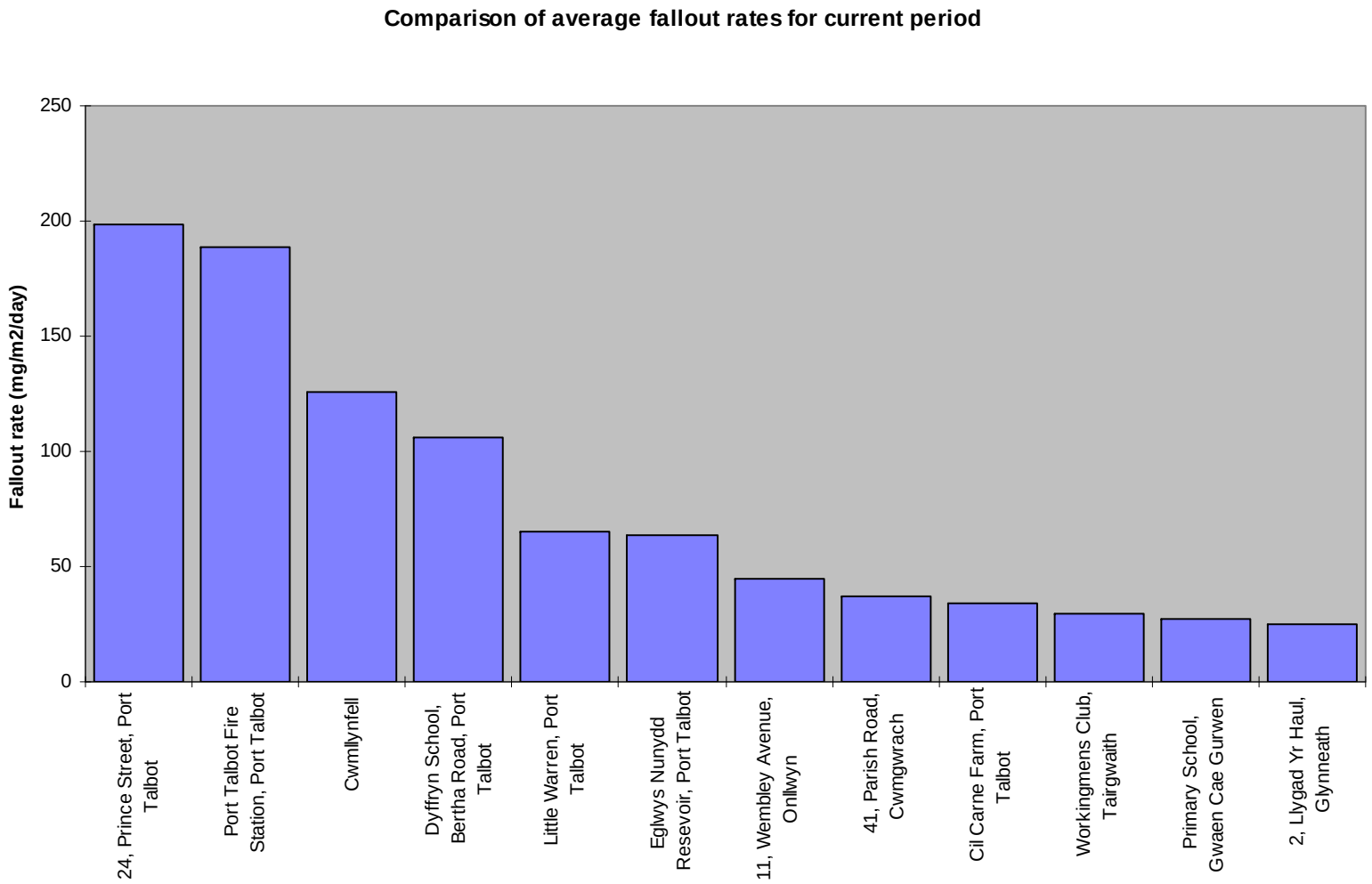


Table 2.15 Sites ranked by average fallout level (mg/m2/day), 2013

Site Name	Fallout Level (mg/m2/day)		200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum	Days within 10% of	Days Exceeding
24, Prince Street, Port Talbot	199	636	0	123
Port Talbot Fire Station, Port Talbot	188	524	34	95
Cwmllynfell	126	259	21	58
Dyffryn School, Bertha Road, Port Talbot	106	307	0	28
Little Warren, Port Talbot	65	178	0	0
Eglwys Nunydd Resevoir, Port Talbot	64	151	0	0
11, Wembley Avenue, Onllwyn	45	84	0	0
41, Parish Road, Cwmgwrach	37	94	0	0
Cil Carne Farm, Port Talbot	34	75	0	0
Workingmens Club, Tairgwaith	30	56	0	0
Primary School, Gwaen Cae Gurwen	28	144	0	0
2, Llygad Yr Haul, Glynneath	25	51	0	0

Figure 2.43 Long term deposition rates

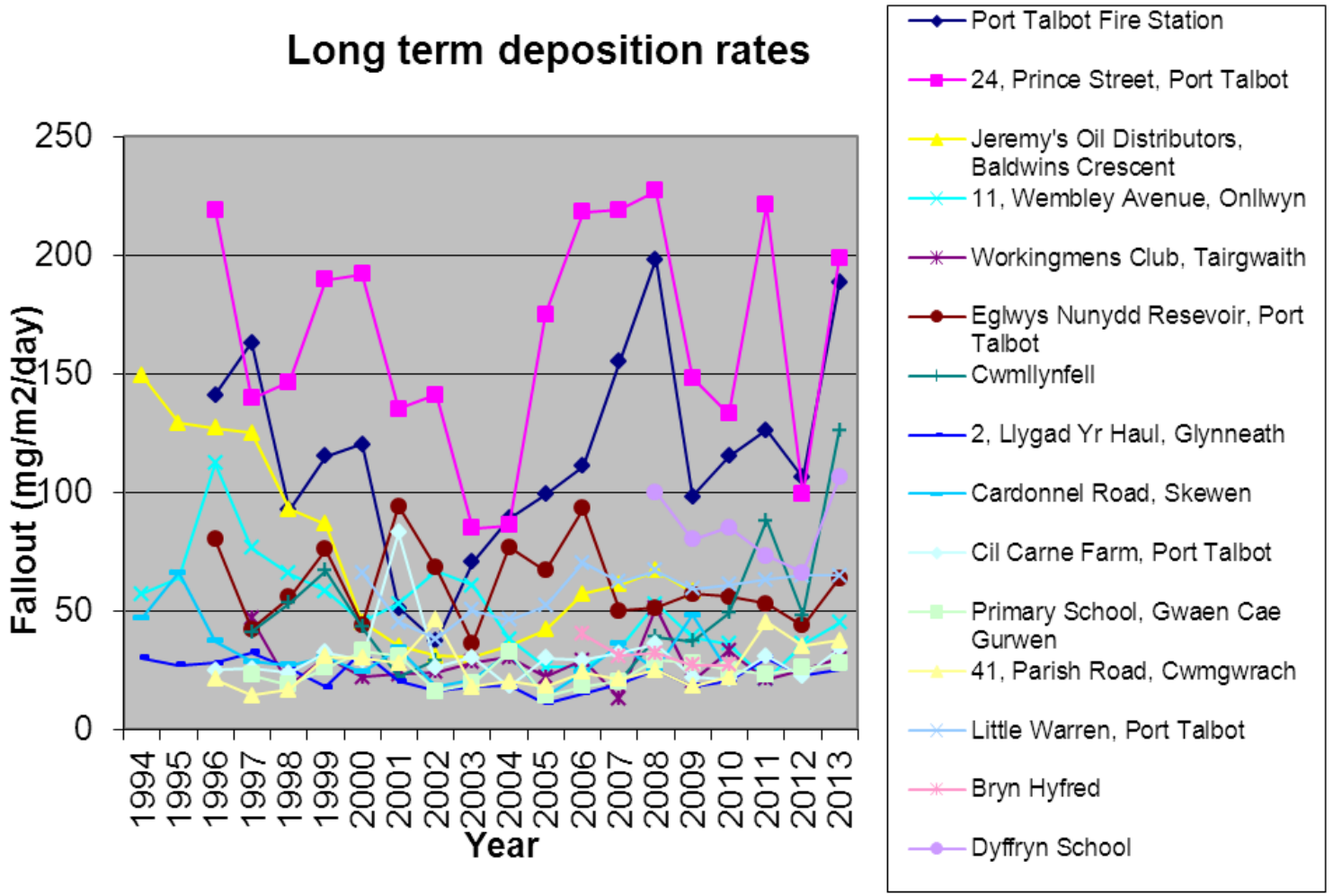


Table 2.16 Long term deposition rates

Site Name	Fallout rate (mg/m2/day)																			
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Port Talbot Fire Station			141	163	92	115	120	51	37	70	89	99	111	155	198	98	115	126	106	188
24, Prince Street, Port Talbot			219	139	146	189	192	135	141	85	86	175	218	219	227	148	133	221	99	199
11, Wembley Avenue, Onllwyn	57	64	112	76	66	58	45	53	67	60	38	26	26	34	53	39	36	21	36	45
Workingmens Club, Tairgwaith				47	18	30	22	23	24	28	30	22	29	13	51	20	33	21	25	30
Eglwys Nunydd, Port Talbot			80	42	55	76	44	94	68	36	77	67	93	50	51	57	56	53	44	64
Cwmllynfell				41	53	67	43	22	29					20	39	37	49	88	48	126
2, Llygad Yr Haul, Glynneath	30	27	28	32	26	18	33	20	16	18	19	11	15	19	25	18	20	30	23	25
Cardonnel Road, Skewen	47	66	37	28	27	30	24	34	18	21	32	14	24	36	25	48	24		24	
Cil Carne Farm, Port Talbot			25	26	24	32	29	83	26	30	18	30	29	32	36	22	21	31	22	34
Primary School, GCG				23	19	26	33	31	16	19	33	14	18	20	29	28	25	23	26	28
41, Parish Road, Cwmgwrach			21	14	17	31	30	28	46	18	20	18	24	21	25	18	22	45	35	37
Little Warren, Port Talbot							66	45	38	50	46	52	70	62	67	59	61	63	65	65
Bryn Hyfred													40	31	32	27	27			
Dyffryn School															100	80	85	73	66	106

2.2.6 Summary of Compliance with AQS Objectives

Neath Port Talbot County Borough Council has examined the results from monitoring PM_{10} at Prince Street, within the AQMA, where the 24-hour mean objective was exceeded. Consequently, the Council **will need to proceed to a Detailed Assessment**, for Prince Street in Port Talbot.

3 New Local Developments

3.1 Road Traffic Sources

There were no new traffic sources of the following types:

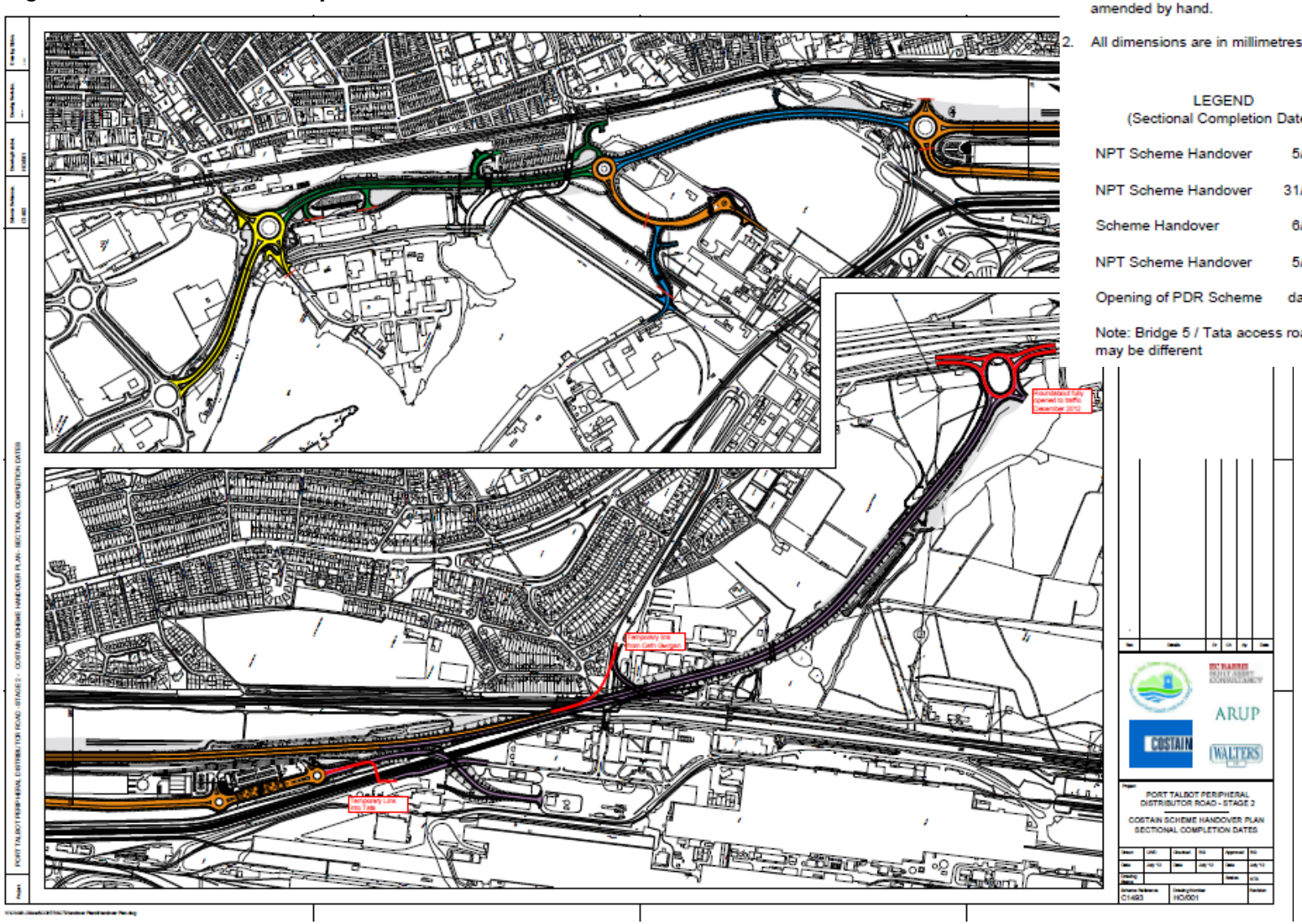
- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Junctions.
- Roads with significantly changed traffic flows.
- Bus or coach stations.

There was one instance of the following type of development:

- New roads constructed or proposed since the last Updating and Screening Assessment.

The final sections of the Peripheral Distributor Road (PDR) were opened during 2013.

Figure 3.1 Port Talbot Peripheral Distributor Road



3.2 Other Transport Sources

There were no new sources of pollution of the following types during 2013:

- Airports
- Locations where diesel or steam trains are stationary for more than 15 minutes with nearby relevant exposure.
- Locations with large numbers of diesel movements with relevant exposure within 30m.
- Ports for shipping.

3.3 Industrial Sources

One Part B permit was surrendered during 2013, but no permits were revoked or issued during the year.

Table 3.1 Part B permits surrendered during 2013

Reference	Operator	Process address	Activity permitted
E3/1/112	Energybuild Limited	Nant y Mynydd OCCS Glynneath	Opencast coal site

There were no new Part B permits issued by Swansea Port Health Authority and no new A1 permits were issued by Environment Agency Wales.

There were no new instances of the following types of development:

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.
- Major fuel storage depots storing petrol.
- Poultry farms.

3.4 Commercial and Domestic Sources

There were no new instances of the following types of development during 2013:

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.

3.5 New Developments with Fugitive or Uncontrolled Sources

There were no new developments with fugitive or uncontrolled sources of the following types:

- Landfill sites.
- Quarries.
- Unmade haulage roads on industrial sites.
- Waste transfer stations, etc.
- Other potential sources of fugitive particulate matter emissions.

Neath Port Talbot County Borough Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- Sections of the Peripheral Distributor Road in Port Talbot.

These will be taken into consideration in the next Updating and Screening Assessment.

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 can be found here:

http://www.npt.gov.uk/default.aspx?page=4045

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

5 Planning Applications

29 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 P2013/0965 - Hirwaun Power. This application related to the development of a 299 MW gas fired power generation on land at Hirwaun industrial estate. Dispersion modelling was carried out which showed that no air quality objectives were predicted to be breached.

Application number P2013/0212 – Ward Brothers Mining Limited. This application related to the development of an opencast coal site at Fforch Egel near Pen-y-Rhiw. The development will require a Part B permit in order to proceed. None has been received yet.

6 Air Quality Planning Policies

The Council's Local Development Plan (LDP) is still in draft and has not yet been formally adopted. Therefore the relevant sections from the currently adopted Unitary Development Plan (UDP) are attached.

ENV15 – AIR QUALITY

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

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

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

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

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

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

8.19.5 Where existing businesses or organisations put forward a proposal which would result in a net improvement in emissions, and this would not prejudice the likelihood of emissions in the whole of the AQMA area breaching the national targets, the proposal would be likely to be considered favourably in terms of air pollution considerations.

8.19.6 Where there is the potential for a proposal to have an unacceptable impact on air quality, the developer is likely to be required to prepare a specialist assessment of the impacts of the proposal. This should take into account

any relevant proposals to reduce polluting emissions and any planning permissions and commitments for proposals which would create emissions which would affect the area concerned.

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

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

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

7 Local Transport Plans and Strategies

7.1 Local Transport Plan

Local authorities no longer produce Local Transport Plans, rather they are required to work with neighbouring authorities to produce Regional Transport Plans. Until the end of the 2013/14 financial year, Neath Port Talbot County Borough Council was part of the South West Wales Regional Transport Consortium (SWWITCH), together with Swansea, Carmarthenshire and Pembrokeshire Unitary Authorities. However, this work is now handled by the Swansea Bay City Region Board.

www.swanseabaycityregion.com

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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 2013 is shown in the following table.

Table 9.1 Action Plan Progress

No.	Measure	Progress in Last 12 Months
A1	Multi agency interaction	The Data Team has continued to make progress with the items listed in the work programme. Tata has produced investigation reports in response to PM_{10} breach days at the AURN site. Both NPT and NRW have contributed to Short Term Action Plan (STAP) investigations for the AURN site as directed by Welsh Government. In addition, NPT has also contributed to a STAP investigation for the Little Warren site. The AirAware LSB project is continuing with evaluation expected in 2014. The industrial alerts system continues to provide useful and timely warnings of poor air quality for operators and regulators alike. A further public air quality public event was being planned for April 2014.

No.	Measure	Progress in Last 12 Months
A2	Dust reduction programme at Tata site	NRW Served an enforcement notice on Tata in 2013 and this brought forward some of the previously planned dust controls. These changes are described in a table at the end of this section. Other improvements at Tata PT in 2013 include: Yard resurfacing work at the stockyards and blending plant Completion of the enclosure work for the 'reverts' (recycled materials) storage bays Procedural/monitoring or 'soft' improvements have also been made elsewhere. Tata Steel's contractor Harsco Metals has also made the following improvements in 2013: Relocation of materials storage areas closer together to reduce vehicle movements Procedural changes at lancing booths to reduce their emptying frequency and minimise fugitive emissions New pressurised water tank systems to assist with dust suppression
A3	Planning Policies	LDP consultation carried out. Comments currently being considered prior to finalisation.
A4	Tree Planting	Urban Trees Project completed in 2013. Tata site greening proceeding.
A5	Transport infrastructure (PDR)	Project completed and opened to traffic on the 18th October 2013.
A6	Train haulage emissions	There were no complaints about dusty trains in Port Talbot during 2013.
A7	NPT permitting in vicinity of steel works	NPT continues to regulate Civil & Marine Slag Cement in accordance with the permit and BAT.

No.	Measure	Progress in Last 12 Months
A8	Travel Plans	• National Resources Wales (formerly the Environment agency) retained Platinum Status. • The Coed Darcy Business Travel Plan Forum is now set up. • Sandvik Osprey in Neath now has a Travel plan and is at Bronze level. • NPT Homes now has a Travel Plan and is at Bronze level. • Neath Port Talbot Council now has a Travel Plan and is at Bronze level. Work continues with the Neath Port Talbot Hospital site as part of the LHB Travel Plan. Jobcentre Plus and the other Housing associations continue to encourage sustainable travel.
A9	School Travel Plans	A total of 55 schools in the County Borough have travel plans, although this figure did not increase in 2013.
A10	Domestic Bonfires	No change to the information provided by Mid and West Wales Fire Brigade.
A11	Industrial Fires	Natural Resources Wales keeps a list of permitted sites with combustible wastes, which are risk categorised. NRW also investigates illegal sites.
A12	Hill Fires	There is no change to the information provided by Mid and West Wales Fire Brigade during 2013. Talks are made at schools in areas at high risk from arson and information on controlled burning is provided for farmers.
A13	Increased street sweeping	The service is still available, but there has been no cause to call upon it in 2013.
A14	Public and industrial air alerts	The industrial air alerts system is used by approximately 130 subscribers. The public system is being trialled and is in use at present with 190 recipients.

Natural Resources Wales – Steelworks Enforcement Notice Activity Plan

ENFORCEMENT NOTICE ACTIVITY PLAN - (January 2014 Update)

FOCUS AREA	Focus Task	Term	Reason	Update
RAW MATERIALS	1.1. Check compliance with Procedures	Short	Established procedures that have worked in the past.	Compliance checked
	1.2. Audit compliance	Short	Check compliance - identify gaps and improvement.	Report issued - now ongoing process
SINTER PLANT	2.1 Reduce chlorides in reverts	Medium	Improve ESP efficiency - reduce visibility - reduce dioxins	Investigating washing of BF4 flue dust - Hydrocyclone trial undertaking. Success on small scale - investigating full size process
	2.2. Check Stack dust monitor calibration	Short	Raise confidence in dynamic measuring system	Calibrated
	2.3. Check ESP Kpi's	Short	Efficient ESP	Checked
	2.4. Reduce Wind Main Leakage	Long	Efficient ESP	Overhauled in 10day outage
	2.5. Improve cooling bed heat exchange	Long	Temperature transportation compliance - effective use of dust suppression foam	Currently within specification - small engineering team set up to increase cooling bed capability. Engineering plan in place
SINTER TRANSPORTATION	3.1. Review online temperature measuring system	Short	Ensure dust suppression system will be effective	System checked with direct contact probe
	3.2. Nalco to ensure application of foam suppression is correct	Short	Effective dust suppression	Temperatures within range
	3.3. Routine shift inspection of suppression system	Short	Ditto	Twice a shift put in place
STOCK HOUSES	4.1. Improve Dust suppression system	Short	Reduce dust emissions	Completed-improved dosing pumps
	4.2. (a) Install new dust suppression systems & resurface- In Haul Road	Short	Reduce dust emissions	Completed-Yard 6 wheel wash
	4.2. (b) Install new mist suppression system - Screens	Long	Reduce dust emissions	Work ongoing
	4.3. Resolve Cable Issue 716	Short	Maintain bunker levels - reduce dropping from height	Completed
	4.4. Review option of mist suppression bunker level	Medium	Reduce High level dust emission	Pilot system trialled - positive results. Feasibility to review
	4.5. Miscellaneous improvements	Medium	Reduce High level dust emission	Vacuum v brushing; use of jetters
BLAST FURNACE 4	5.1. Reduce dust at cyclone discharge	Short & Medium	Reduce dust emissions	Permanent enclosure in place & pug mill water application improved
	5.2. Improve furnace stability	Long	Reduce safety bleeder openings	Ongoing improvement process
	5.3. Audit cyclone discharge	Short	Identify improvement	Report issued - feedback suggests much improved situation
BLAST FURNACE 5	6.1. Reduce dust at dust catcher discharge	Long	Reduce dust emissions	Audit suggests work to be done
	6.2. Improve furnace stability	Long	Reduce safety bleeder openings	Ongoing improvement process
	6.3. Audit dust catcher discharge	Short	Identify improvement	Report issued - feedback suggests opportunities
	6.4. Review Fume extraction process	Long	Identify improvement	Team to be set up. Original design being reviewed. Extraction checked and working at full capacity
PLATING	7.1. Review procedure against Ijmuiden	Medium	Reduce emissions during plating	Reviewed against IJ knowledge and practices being adopted
	7.2. Audit process	Short	Identify improvement & check compliance	Informally done - need to undertake audit when improvements completed
	7.3. Communicate with HARSCO senior management	Short	Stakeholder engagement	Positive response
ROADS & VEHICLES	8.1. Engage with road sweepers & review focus area	Short	Ensure resources maximises dust reduction	Complete - review periodically
	8.2. Review water bowser capability	Short	Ensure optimum bowser capability to minimise road & slab yard dust levels	Trial of larger bowser in raw materials - increased filling capability at slab yards - successful trial, to be adopted
	8.3. Check site compliance of road haulage procedures	Short	Reduce Speed , improve load sheeting , reduce spillage	Increased focus & communication to lorry drivers to hauliers - Management discussions with Harsco & Tarmac
	8.4. Review Betsi transportation	Medium	Low sensitivity - but visible dust levels when dumper leaving Tarmac	To be reviewed

Natural Resources Wales – Steelworks Enforcement Notice Activity Plan contd.

	SAMPLE TESTING	9.1 Analysis of dust	Short	Identify Source	Initial results being validated
		9.2. Improve sample analysis process	Long	Slicker process required for the future	STC / IJ/Harbourside & ourselves in discussion. Capability improved at Harbourside
	COMMUNICATION	10.1. Community meeting	Short	Engagement	Complete
		10.2. SA13	Short	Engagement	Complete
		10.3. Civic Centre presence	Short	Engagement	Wednesday & Thursdays. Complete
		10.4. Media	Medium	Engagement	Monitor
		10.5. NPTC	Short	Engagement	Ongoing liaison
		10.6. Community letter	Short	Engagement	Built into 10. 2. Complete
		10.7. Community Call line	Short	Engagement	In and operational
		10.8. NRW	Short	Engagement	Ongoing process
	General Management	11.1. Create focused Task Team & lead	Short	Immediate action	In and working
		11.2 Review and update Air Quality Policy	Medium	Include organisational changes	Complete issued & PDCA process started
		11.3. Create lead indicators for future monitoring	Long	Sustainable process	Work in progress

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Continuous monitoring of NO_2 at Port Talbot Fire Station continues to show that results easily comply with air quality objectives, as has always been the case.

Continuous monitoring of NO_2 at Pontardawe Post Office does not show a breach of the air quality objectives. However, results at the frontage as measured by diffusion tubes are significantly higher. But application of a local bias adjustment factor shows that the air quality objective is not breached either at the frontage or at other properties in the vicinity.

Continuous monitoring at the junction of Cimla Road and Victoria Gardens shows that neither the annual averaged Air Quality Objective (40 µg/m3) nor the hourly averaged AQO (200µg/m3) for nitrogen dioxide were exceeded at sites near Victoria Gardens, Neath. Although, a property at 1, Victoria Gardens (39.8 µg/m3) was close to, but did not exceed the annual averaged AQO when NO_2 levels were calculated with the “distance from roads spreadsheet”.

Continuous monitoring of PM_{10} continues to show compliance with the averaged air quality objective. The daily averaged air quality objective was complied with at all sites except Prince Street, which is operated by Natural Resources Wales. The instrument used for these measurements was a TEOM, which was subject to correction via the Volatile Correction Model (VCM). The Council will deploy a new FDMS monitor in 2014 as part of a Detailed Assessment of air quality for PM_{10}.

Measurement of sulphur dioxide and carbon monoxide at Port Talbot Fire station continue to show compliance with air quality objectives.

Levels of $PM_{2.5}$ easily met both the Target and Limit values, which are to be achieved by 2015.

Ozone concentrations breached the recommended air quality objective on 45 occasions over seven days.

Once again, levels of polyaromatic hydrocarbons (PAH) exceeded the air quality objective, but complied with the EU limit value. Levels of PAH appear to be increasing slightly over time.

Lead levels were found to easily comply with the air quality objective as measured at three locations in Pontardawe and one in Port Talbot.

Levels of arsenic and cadmium continue to comply with the EU Target. Levels of nickel comply with EU Target at all sites except Tawe Terrace.

Sites at Port Talbot continue to rank the highest for nuisance dust fallout rates. The Prince Street sampler was ranked highest again and this was one of four sites which recorded results exceeding the 200 mg/m^2/day "nuisance limit". The Prince Street site averaged just under the "nuisance limit" for the year as a whole. 2013 was also a poor year for fallout at the Cwmllynfell site, which is close to an opencast site.

9.2 Conclusions relating to New Local Developments

There is only one new local development that is considered to require consideration in the next Updating and Screening Assessment i.e.

- Sections of the Peripheral Distributor Road in Port Talbot.

However, this is not considered likely to require a Detailed Assessment.

9.3 Other Conclusions

The steelworks Dust Improvement Plan and recent enforcement notice have continued to act as drivers for improvement. However, the breach of the short term air quality objective at Prince Street was surprising and a Detailed Assessment will follow.

The Data Team work programme, breach day investigations and other multi-agency work continues with the aim of identification of pollution sources and potential improvements.

The local air quality strategy ("airWise") was re-issued in November 2013 following consultation. Progress towards implementation is contained within the strategy document.

There were no planning applications received which appear to pose a threat to air quality objectives.

The Local Development Plan is still in draft, but the Unitary Development Plan still contains relevant provisions for the protection of air quality.

9.4 Proposed Actions

Monitoring data at Prince Street carried out by Natural Resources Wales has identified the need for a Detailed Assessment for PM_{10}. This is because of an exceedance of the short term air quality objective.

This Mobile Monitoring Facility (MMF) is located at Prince Street on a temporary basis and will be re-located at some point. The Council has therefore resolved to install a TEOM/FDMS with a facility to monitor both PM_{10} and $PM_{2.5}$.

The Detailed Assessment of nitrogen dioxide at Victoria Gardens shall be submitted at the same time as this report.

The next course of action will be to submit the 2015 Updating and Screening Assessment and conduct a Detailed Assessment of the short term air quality objective for PM_{10} at Prince Street, Port Talbot.

Appendices

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

NO_2 diffusion tubes are sourced from Environmental Scientifics Group and are prepared using 50% TEA in acetone. The bias adjustment factor of 0.75 was used for 2013 as derived from the average of three sites where diffusion tubes were co-located with continuous analysers.

Factor from Local Co-location Studies

Diffusion tubes were co-located with continuous analysers at the following locations:

Month	Pontardawe Post Office			Victoria Gardens			Port Talbot Fire Station		
	Cm	Dm	A (Cm/Dm)	Cm	Dm	A (Cm/Dm)	Cm	Dm	A (Cm/Dm)
Jan	33.1	31.1	1.064	47.8	68.2	0.701	23.5	34.8	0.675
Feb	29.6	33	0.897	46.4	61.6	0.753	22.1	31.7	0.697
Mar	30.3	34.8	0.871	43.1	57.4	0.751	16.9	27.5	0.615
Apr	20.9	24.6	0.850	41.5	62.2	0.667	14.4	25.3	0.569
May	16.8	21.1	0.796	33.1	61.2	0.541	12.1	17.9	0.676
Jun	16.4	21.5	0.763	32.7	61.2	0.534	11.3	18.2	0.621
Jul	17.4	19	0.916	38.1	63.4	0.601	14.6	16.3	0.896
Aug	17.8	18.6	0.957	34.7	59.9	0.579	13	18.6	0.699
Sep	21.4	22.8	0.939	36.5	60.9	0.599	15.2	19.4	0.784
Oct	18.9	24.6	0.768	43.7	62	0.705	16.5	26.3	0.627
Nov	27.9	26.1	1.069	52.6	63.6	0.827	24.3	28.4	0.856
Dec	26	27.8	0.935	49.8	65.9	0.756	19.2	32.8	0.585
Year	23	25.4	0.9	41.6	62.3	0.668	16.9	24.8	0.682

PM Monitoring Adjustment

No PM adjustment was required for PM_{10} analysers operated by Neath Port Talbot County Borough Council as FDMS TEOMs were used in all cases. However, data from the TEOM operated by Natural Resources Wales at Prince Street was subject to VCM correction. This correction was carried out by Natural Resources Wales. The data was downloaded from the Welsh Air Quality Forum Website.

Short-term to Long-term Data adjustment

No adjustment was required in respect of continuous analysers or diffusion tubes.

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 Operators, 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 www.airquality.co.uk.

All PM_{10} 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 by Ricardo-AEA which provides for two site audits per year and QA/QC of the data which is polled by R-AEA 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

Environmental Scientifics Group 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-115-122-(October-2011--September-2013)-NO2-report.pdf