Neath Port Talbot County Borough Council

2018 Air Quality Progress Report

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

Date (July, 2018)

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Executive Summary

The long-term Air Quality Objectives for nitrogen dioxide were not breached at any locations in Neath Port Talbot.

Continuous measurements of NO_2 at Victoria Gardens increased slightly but the ongoing trend is still downwards. Measurements at Port Talbot Fire station were lower than the previous year and continue to easily comply with air quality objectives.

Neither the long-term nor the short-term Air Quality Objectives for PM_{10} were not breached in Port Talbot. However, the Taibach/Margam AQMA will continue to remain in force.

There were no exceedances of Air Quality Objectives for sulphur dioxide (SO_2), lead (Pb) or carbon monoxide (CO).

Fine particulates of less than 2.5 microns in size ($PM_{2.5}$) easily complied with the EU Target which is to be complied with by 2015.

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

The concentration of polyaromatic hydrocarbons at Port Talbot frequently exceeds the Air Quality Objective of 0.25 ng/m^3, but has never exceeded the EU target value of 1 ng/m^3. The increasing trend observed in recent years has been reversed in 2017 with a reduction of approximately 30% compared to the previous year.

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

Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe. This is the first occasion that nickel levels at Tawe have complied with the EU Target and is a consequence of effective regulation and operation of the Wall Colmonoy site.

The highest rates of fallout of large particles (nuisance dust) were measured in Port Talbot at Port Talbot Fire Station and Prince Street. Fallout rates at these locations were broadly similar to the previous year.

The next actions to be taken will be to:

- Submit a Progress report for the calendar year of 2018.

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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 exceedances are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedance 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 (milligrams per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

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

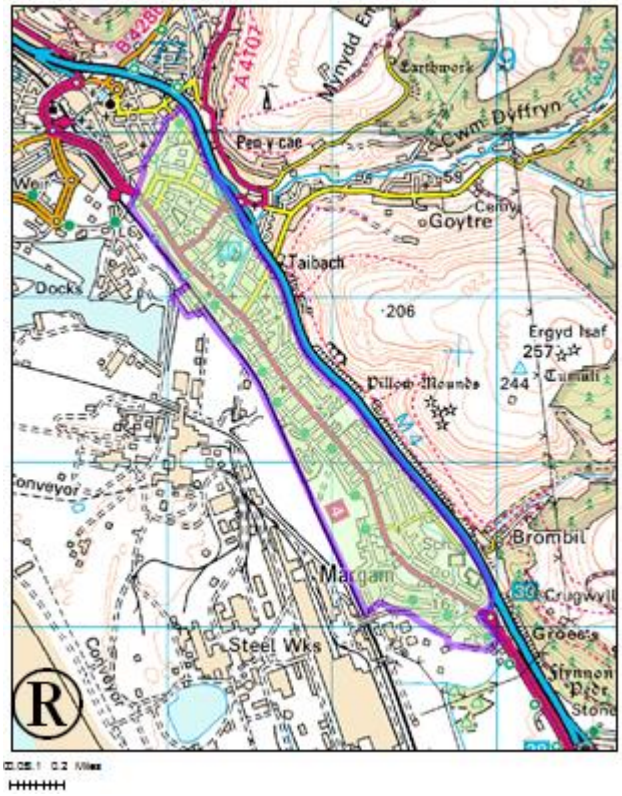
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2011
1,3-butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	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 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 PM_{10} 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 produced in 2013, which identified a breach of the short term air quality objective for PM_{10} at Prince Street in Port Talbot using equipment owned by Natural Resources Wales (NRW). A new monitor was to be installed in 2014 to replace the NRW device, which was relocated. Consequently, the report identified the need to proceed to a Detailed Assessment for PM_{10} at respect of Prince Street, Margam.

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

property at 1 Victoria Gardens (39.8 µg/m3) was close to exceeding the short term Air Quality Objective (AQO).

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

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

An Updating and Screening Assessment was reported in 2016. This identified the need to proceed to a Detailed Assessment of nitrogen dioxide at Victoria Gardens, Neath.

A Detailed Assessment of NO_2 was reported in 2016. This recommended the deployment of diffusion tubes in triplicate at 1, Victoria Gardens, using circular clips. In this way monitoring could be conducted at the location of greatest relevant exposure whilst minimising health and safety risks.

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	Aug 2014	Detailed Assessment of PM_{10} at Prince Street in Port Talbot is recommended. New PM_{10} monitor required at this site.
Detailed Assessment of air quality	Aug 2014	No breach of short term AQO for NO_2 at Victoria Gardens, but one property is very close to exceeding.
Updating and Screening Assessment	Nov 2015	Detailed assessment recommended for Victoria Gardens site in Neath.
Detailed Assessment of air quality	Nov 2015	Detailed Assessment of PM_{10} at 8 sites in Port Talbot. No breaches of air quality objectives.
Updating and Screening Assessment	July 2016	Detailed assessment recommended for Victoria

		Gardens site in Neath.
Detailed Assessment of air quality	July 2016	Deploy NO_2 diffusion tubes at 1 Victoria Gardens, Neath.
Progress report	July 2017	

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Measurements of carbon monoxide (CO), fine particulates (PM_{10}), sulphur dioxide (SO_2) and nitrogen dioxide (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 2016 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. The site at Pontardawe Post Office was discontinued in July 2016 because NO_2 levels had decreased significantly. The analyser is MCERTS certified and are subject to QA/QC audits and data ratification by Ricardo under a contract that also ensures that data is disseminated via the Welsh Air Quality Forum website. The instruments are covered by service contracts.

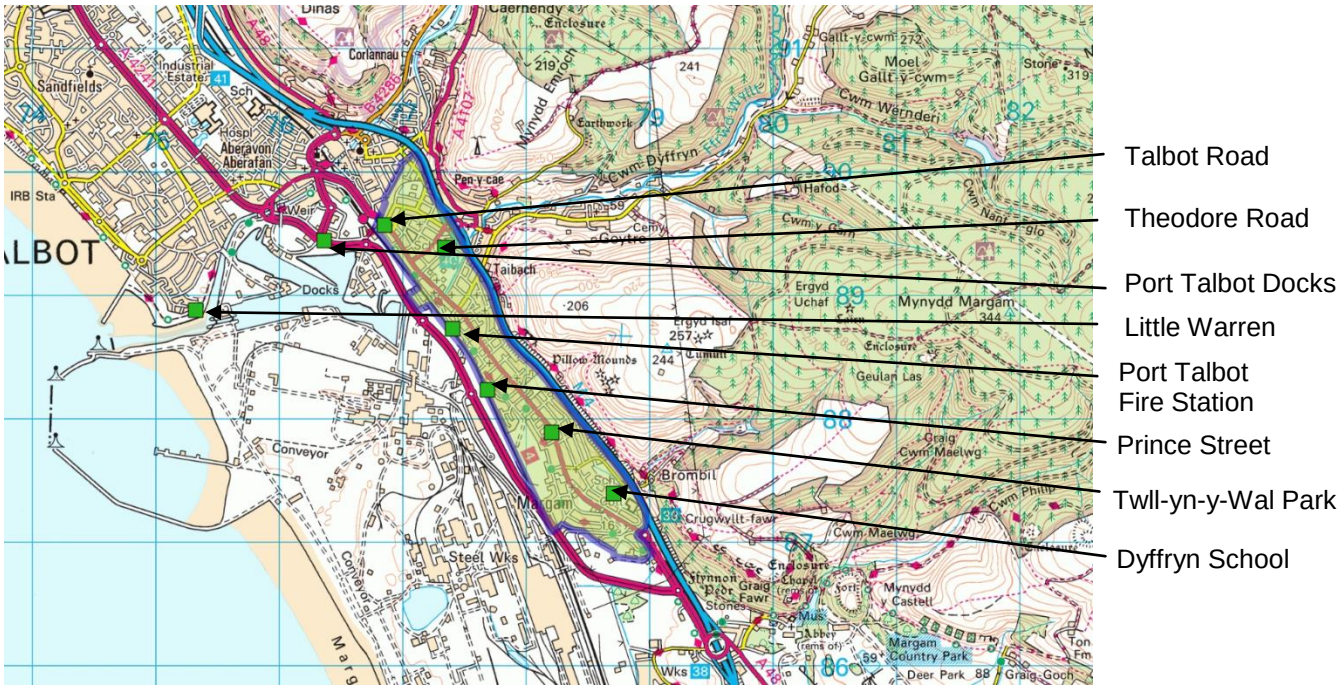
There are a total of eight PM_{10} analysers deployed in or near to the AQMA by the Council. All are Rupprecht & Patashnick TEOM FDMS units with type CB driers. Analysers owned by Neath Port Talbot Council are all covered by service contracts and QA/QC contracts with Richardo-AEA. Calibrations of gas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

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

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

Figures 2.1 to 2.4 show the locations of the monitors.

Figure 2.1 Map of Automatic PM_{10} Monitoring Sites



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

Figure 2.2 Map of Automatic NO_2 Monitoring Sites

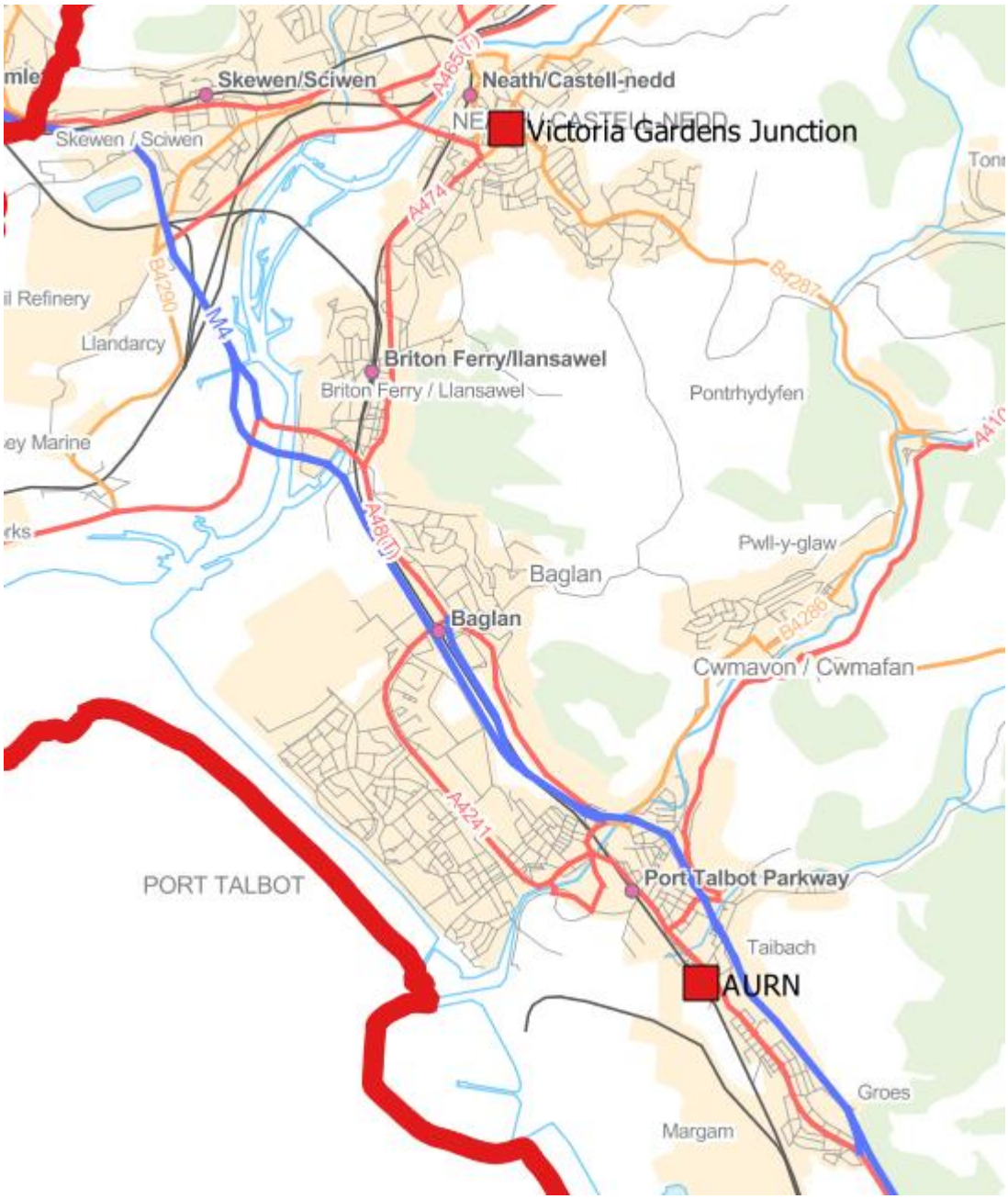


Figure 2.3 NO_2 analyser at Cimla Road/Victoria Gardens in Neath

Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
PT2	Port Talbot Fire Station	Industrial	277388	188733	2.5	PM_{10}, $PM_{2.5}$, SO_2, CO, O_3, NO_2	Y	FDMS, UV fluorescence, IR absorption, UV absorption, chemiluminescence	Y (16)	8	Y
DS1	Dyffryn School	Industrial	278700	187387	1.8	PM_{10}	Y	FDMS	Y (88)	75	N
TW1	Twll-yn-y Wal Park	Industrial	278196	187891	1.8	PM_{10}	Y	FDMS	Y (14)	2	N
TH1	Theodore Road	Industrial	277328	189385	1.8	PM_{10}	Y	FDMS	Y (5)	6	N
TR1	Talbot Road	Roadside	276833	189567	1.8	PM_{10}	Y	FDMS	N	2	N
LW1	Port Talbot Little Warren	Industrial	275313	188879	2.5	PM_{10}	N	FDMS	N	160	N
DK1	Port Talbot Docks	Industrial	276346	189446	2.5	PM_{10}	Y	FDMS	N	2	N
PS2	Prince St.	Industrial	277689	188235	1.8	PM_{10}, $PM_{2.5}$	Y	FDMS	Y (40)	47	Y
VG2	Victoria Gardens	Roadside	275471	197183	1.2	NO_2	N	Chemiluminescence	Y (21)	1	Y

2.1.2 Non-Automatic Monitoring Sites

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

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

PM_{10} is also measured at Port Talbot Fire Station using a Partisol, which is quality assured by Bureau Veritas.

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

Figure 2.4 –NO_2 diffusion tube Sites

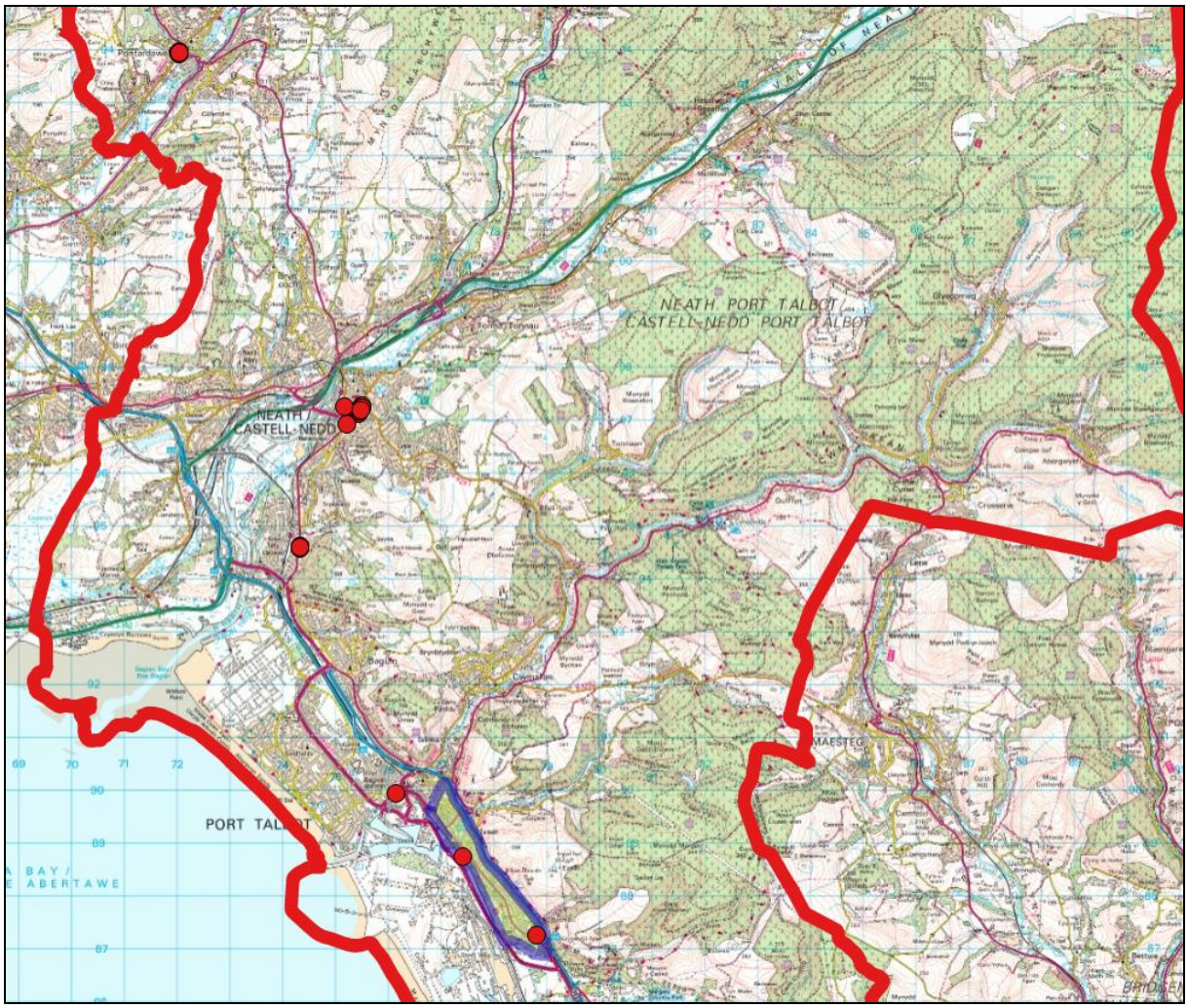
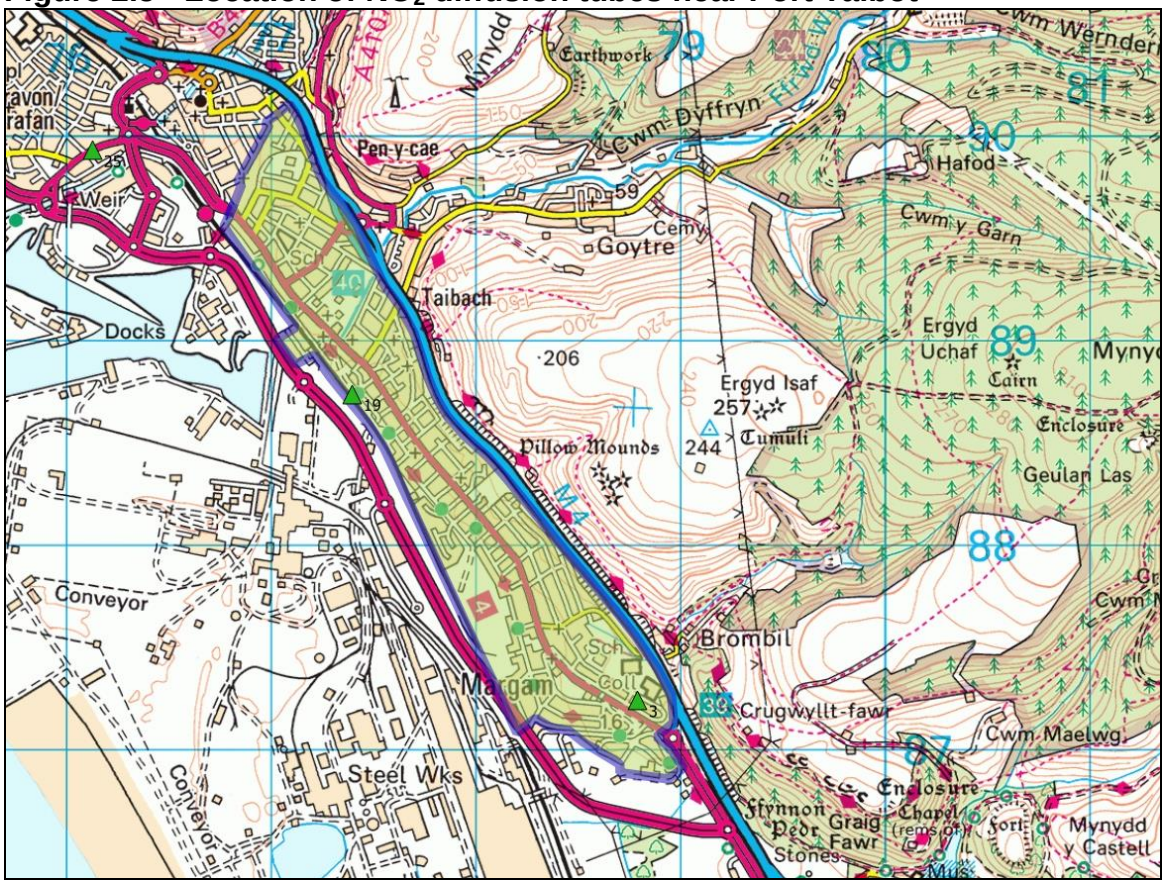


Figure 2.5 - Location of NO_2 diffusion tubes near Port Talbot



The Port Talbot AQMA is shaded green.

Figure 2.6 Location of NO_2 diffusion tubes in Briton Ferry

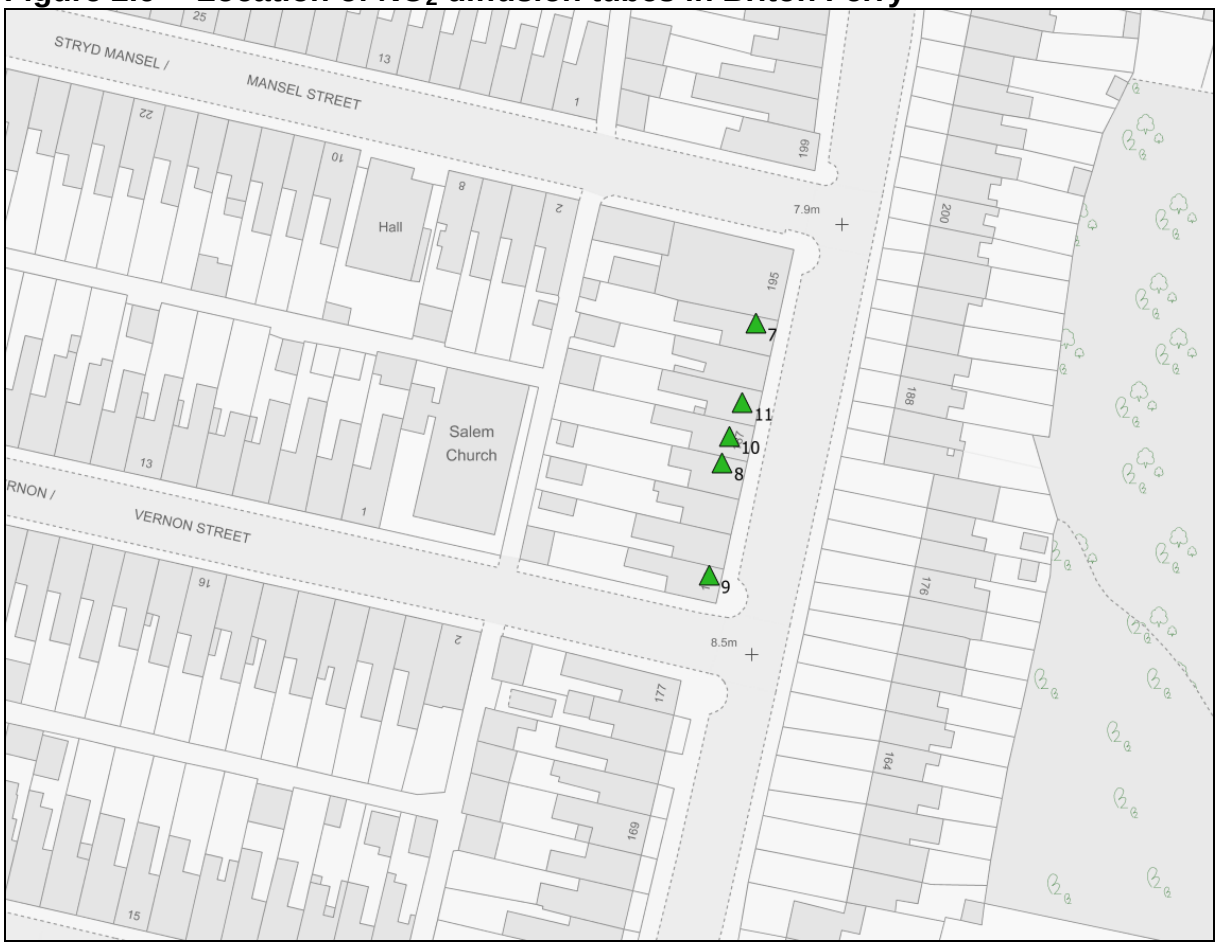


Figure 2.7 -Location of NO_2 diffusion tubes in Neath

Victoria Gardens Junction

Windsor Road

Stockham's Corner

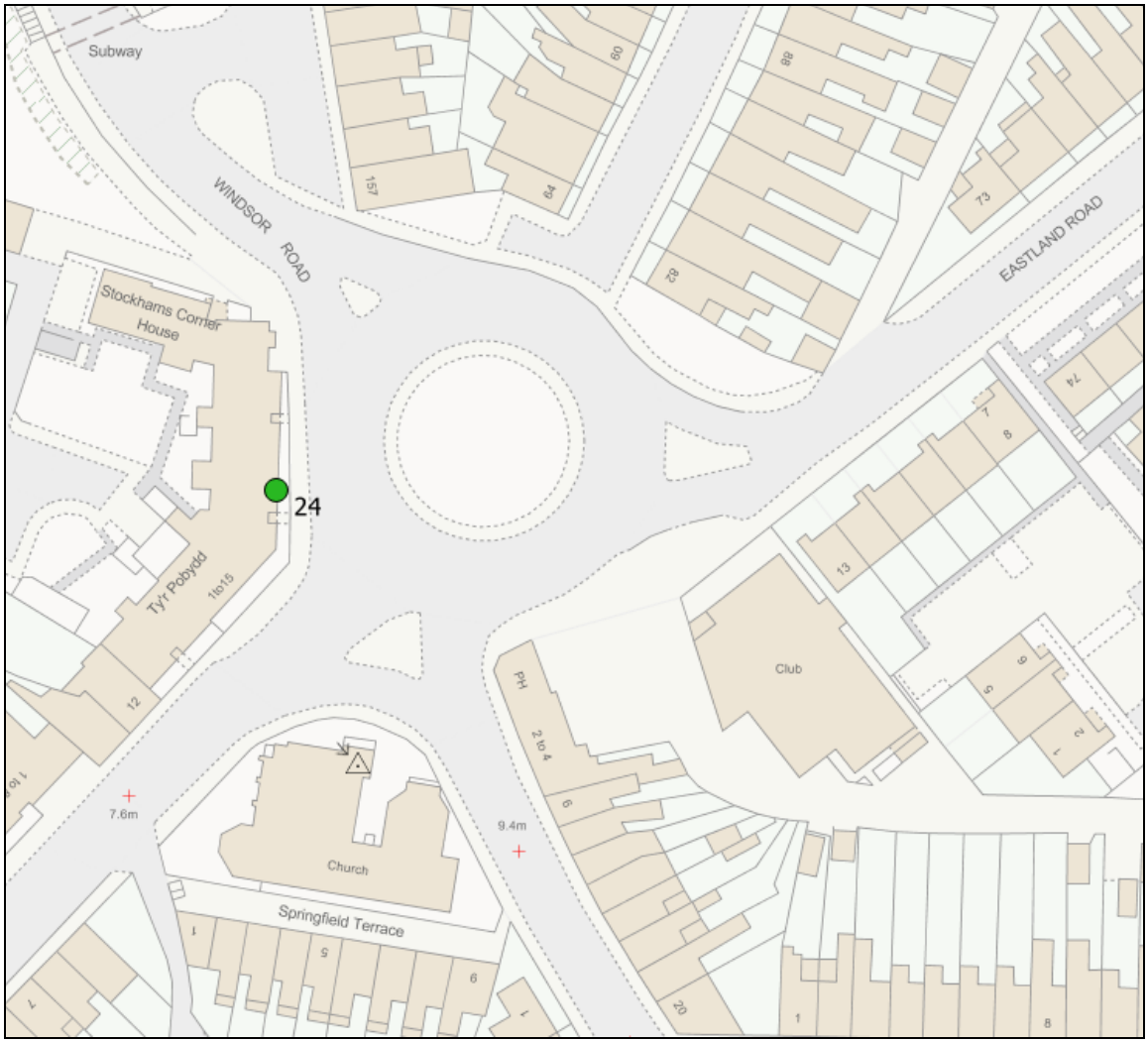


Figure 2.8 - Location of NO_2 diffusion tubes in Pontardawe

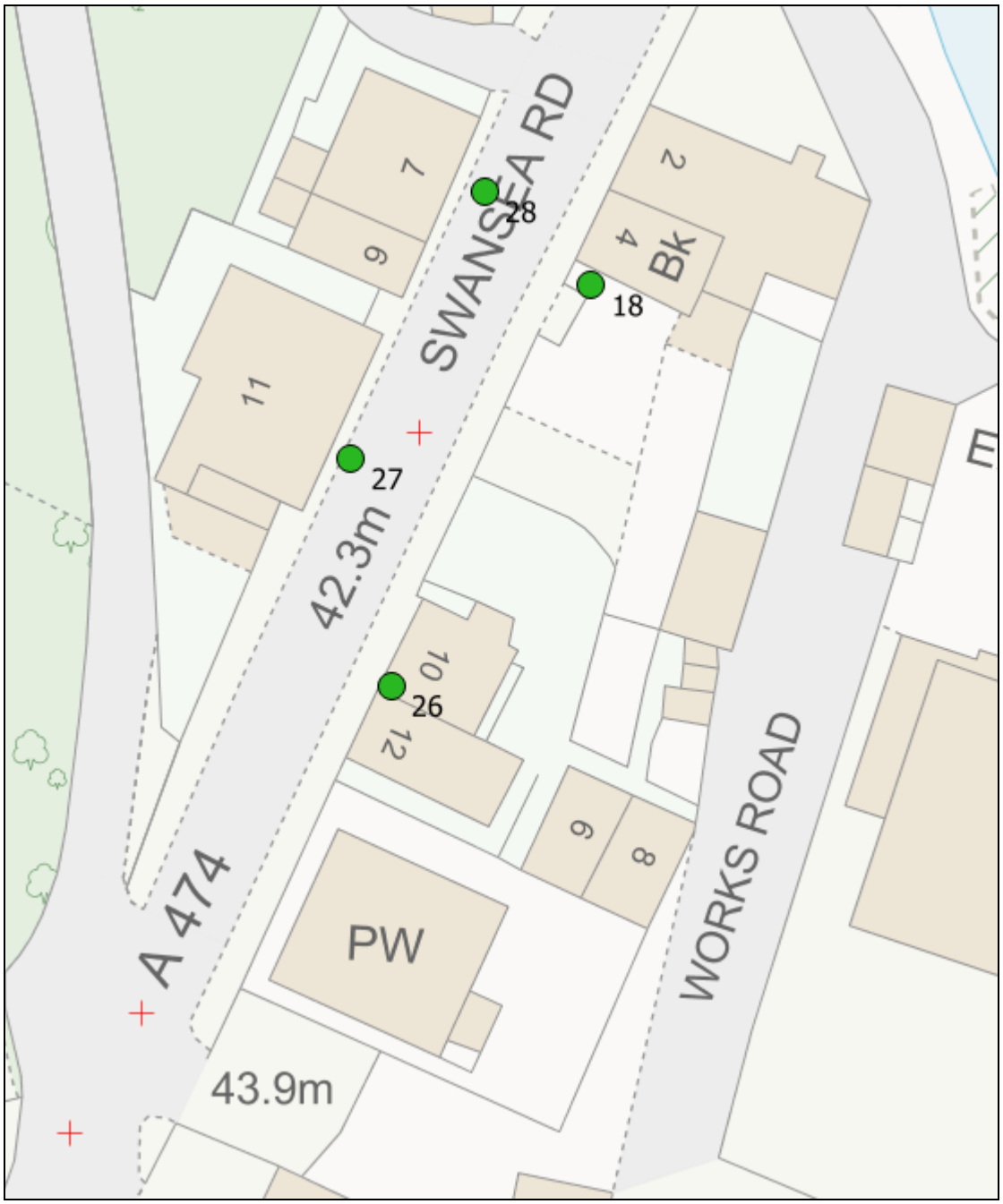


Table 2.2 – Details of Non- Automatic Monitoring Sites

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?
1	1 Victoria Gardens, Neath	Roadside	275463	197217	2.0	NO_2	N	N	Y(0m)	1m	Y
3	11 College Green, Margam, Port Talbot	Urban background	278794	187237	1.5	NO_2	Y	N	Y (2m)	1m	N
4	8 Victoria Gardens, Neath	Roadside	275494	197272	1.5	NO_2	N	N	Y (2m)	4.5 m	N
5	28 Eastland Road, Neath	Roadside	275420	197161	1.5	NO_2	N	N	Y (0m)	4 m	N
7	Moby's, Neath Road, Briton Ferry	Roadside	274312	194601	2.0	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	2.0	NO_2	N	N	Y (0m)	1.5 m	Y
9	179 Neath Road, Briton Ferry	Roadside	274305	194563	2.0	NO_2	N	N	Y (0m)	1.5 m	Y
10	187 Neath Road, Briton Ferry	Roadside	274308	194584	2.0	NO_2	N	N	Y (0m)	1.5 m	Y
11	189 Neath Road, Briton Ferry	Roadside	274310	194589	2.0	NO_2	N	N	Y (0m)	1.5 m	Y
12	34 Eastland Road, Neath	Roadside	275427	197139	1.5	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	1.5	NO_2	N	N	Y (0m)	4 m	N
14	32 Eastland Road, Neath	Roadside	275431	197149	1.5	NO_2	N	N	Y (0m)	4 m	N
15	30 Eastland Road, Neath	Roadside	275434	197157	1.5	NO_2	N	N	Y (0m)	4 m	N
16	5 Victoria Gardens, Neath	Roadside	275464	197230	1.5	NO_2	N	N	Y (0m)	3.5 m	Y
17	1 Greenway Road, Neath	Roadside	275455	197211	2.0	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	2.0	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	1.5	NO_2	N	N	Y (0m)	3.5 m	Y
21	50 Greenway Road, Neath	Roadside	275452	197195	2.0	NO_2	N	N	Y (0m)	1 m	Y
22	54 Windsor Road, Neath	Roadside	275146	197248	2.0	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	1.5	NO_2	N	N	Y (0m)	3.5 m	Y
24	Stockham's Corner Flats	Roadside	275200	196905	2.0	NO_2	N	N	Y (0m)	3 m	Y
25	Old Fire Station, Water Street, Port Talbot	Roadside	276131	189926	2.0	NO_2	N	N	Y (3m)	1 m	Y
26	10 Swansea Road, Pontardawe	Roadside	272019	203924	2.0	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	2.0	NO_2	N	N	Y (0m)	1 m	Y
28	8 Swansea Road, Pontardawe	Roadside	272026	203961	2.0	NO_2	N	N	Y (0m)	1 m	Y
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. No site exceeded the annual air quality objective of 40 µg/m3. Diffusion tubes were co-located at these two continuous analysers in order to provide a local bias adjustment factor for diffusion tubes in the County Borough.

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 2017 % [b]	Annual Mean Concentration (µg/m^3)				
					2013* [c]	2014* [c]	2015* [c]	2016 [c]	2017 [c]
PT2	Industrial	Y	96	96	17	17	17	21	16
VG2	Roadside	N	99	99	**42**	**42**	40	37	39

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

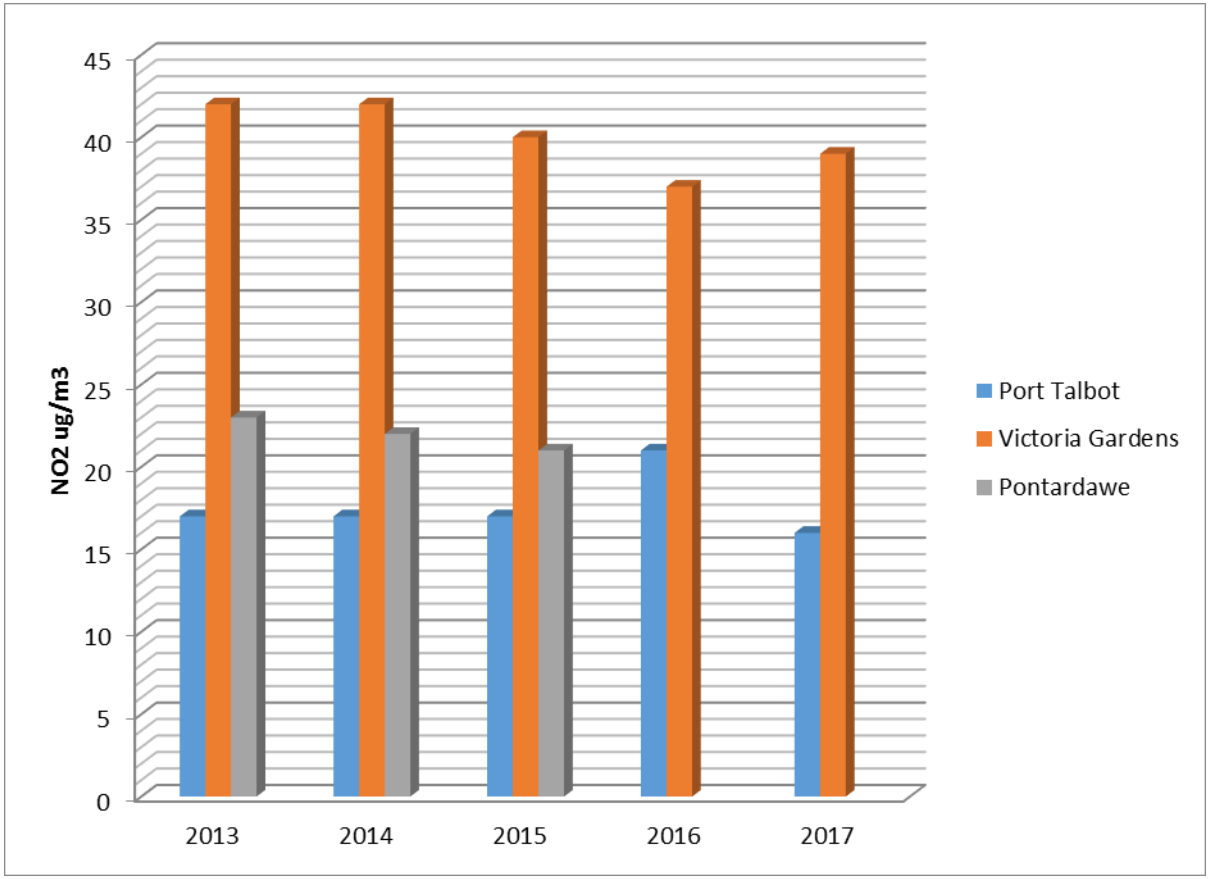
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[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 Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Figure 2.9 – Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites



Nitrogen dioxide levels decreased at Margam Fire Station in 2017 following an increase the previous year. NO_2 levels at Victoria Gardens increased a little during 2017, bucking the decreasing trend of the recent preceding years.

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 2017 % [b]	Number of Hourly Means > 200µg/m^3				
					2013* [c]	2014* [c]	2015* [c]	2016 [c]	2017 [c]
PT2	Industrial	Y	96	96	0	0	0	0	0
VG2	Roadside	N	99	99	0	0	0	0	0

In bold, exceedance 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 exceedances for previous years is optional

Diffusion Tube Monitoring Data

Results are shown in table 2.5 below. A local bias adjustment factor of 0.74 was derived from diffusion tubes co-located with the two continuous analysers at Port Talbot Fire Station and Victoria Gardens.

Table 2.5 – Results of NO_2 Diffusion Tubes 2017

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
1	1 Victoria Gardens, Neath	Roadside	N	Triplicate	12	38.8
3	11 College Green, Margam, Port Talbot	Urban background	Y	N	11	13.2
4	8 Victoria Gardens, Neath	Roadside	N	N	11	27.1
5	28 Eastland Road, Neath	Roadside	N	N	12	31
7	Moby's, Neath Road, Briton Ferry	Roadside	N	Triplicate	12	30.2
8	185 Neath Road, Briton Ferry	Roadside	N	N	12	29.0

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
9	179 Neath Road, Briton Ferry	Roadside	N	N	12	28.3
10	187 Neath Road, Briton Ferry	Roadside	N	N	12	28.9
11	189 Neath Road, Briton Ferry	Roadside	N	N	10	29.2
12	34 Eastland Road, Neath	Roadside	N	N	12	29.4
13	40 Eastland Road, Neath	Roadside	N	N	12	24.7
14	32 Eastland Road, Neath	Roadside	N	N	12	30.1

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
15	30 Eastland Road, Neath	Roadside	N	N	12	30.8
16	5 Victoria Gardens, Neath	Roadside	N	N	12	24.2
17	1 Greenway Road, Neath	Roadside	N	N	12	38.2
18	Pontardawe Post Office	Roadside	N	Triplicate	12	37.1
19	Port Talbot Fire Station	Industrial	Y	Triplicate and Co-located	12	15.6
20	3 Victoria Gardens, Neath	Roadside	N	Triplicate	12	33.6

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
21	50 Greenway Road, Neath	Roadside	N	N	11	35.8
22	54 Windsor Road, Neath	Roadside	N	N	12	25.7
23	4 Victoria Gardens, Neath	Roadside	N	N	11	34.4
24	Stockham's Corner Flats	Roadside	N	triplicate	12	29.9
25	Old Fire Station, Water Street, Port Talbot	Roadside	N	N	10	26.4

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
26	10 Swansea Road, Pontardawe	Roadside	N	N	12	34.7
27	11a Swansea Road, Pontardawe	Roadside	N	N	10	38.3
28	8 Swansea Road, Pontardawe	Roadside	N	N	10	27.5
34	Lights at Cimla Junction	Roadside	N	Triplicate and Co-located	11	39.0
35	6 Glan Afan, Baglan	Urban background	N	N	10	11.8
36	63 Glan Afan, Baglan	Urban background	N	N	11	13.7

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2017 (Number of Months or %) [a]	2017 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.74 [b]
37	Bae Baglan bus stop	Roadside	N	N	9	13.0
38	Bae Baglan playground	Urban background	N	N	6	10.5

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

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

[a] Means should be "annualised" as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

[b] If an exceedance 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 paragraphs 7.77 to 7.79 of LAQM.TG16.

Table 2.6 – Results of NO_2 Diffusion Tubes (2012 to 2016)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2013 (Bias Adjustment Factor = 0.75)	2014 (Bias Adjustment Factor = 0.78)	2015 (Bias Adjustment Factor = 0.80)	2016 (Bias Adjustment Factor = 0.71)	2017 (Bias Adjustment Factor = 0.74)
1	Roadside	N	-	-	-	35.5	38.8
3	Urban background	Y	15.7	14.9	14.5	14.0	13.2
4	Roadside	N	28.9	27.6	25.7	26.9	27.1
5	Roadside	N	30.0	28.5	29.6	28.3	31
7	Roadside	N	29.1	29.9	27.9	27.6	30.2
8	Roadside	N	30.1	29.1	28.1	27.5	29.0
9	Roadside	N	29.4	28.7	28.6	26.3	28.3
10	Roadside	N	29.1	29.0	28.0	26.1	28.9
11	Roadside	N	28.7	28.4	28.1	27.3	29.2
12	Roadside	N	31.0	29.2	28.9	26.1	29.4
13	Roadside	N	29.7	25.7	26.2	27.9	24.7
14	Roadside	N	31.3	30.0	30.1	29.6	30.1
15	Roadside	N	30.6	29.8	29.8	29.4	30.8
16	Roadside	N	33.7	34.1	32.8	28.2	24.2
17	Roadside	N	32.9	35.2	33.9	36.8	38.2
18	Roadside	N	37.3	36.6	36.8	33.9	37.1
19	Industrial	Y	18.6	16.9	16.6	16.8	15.6

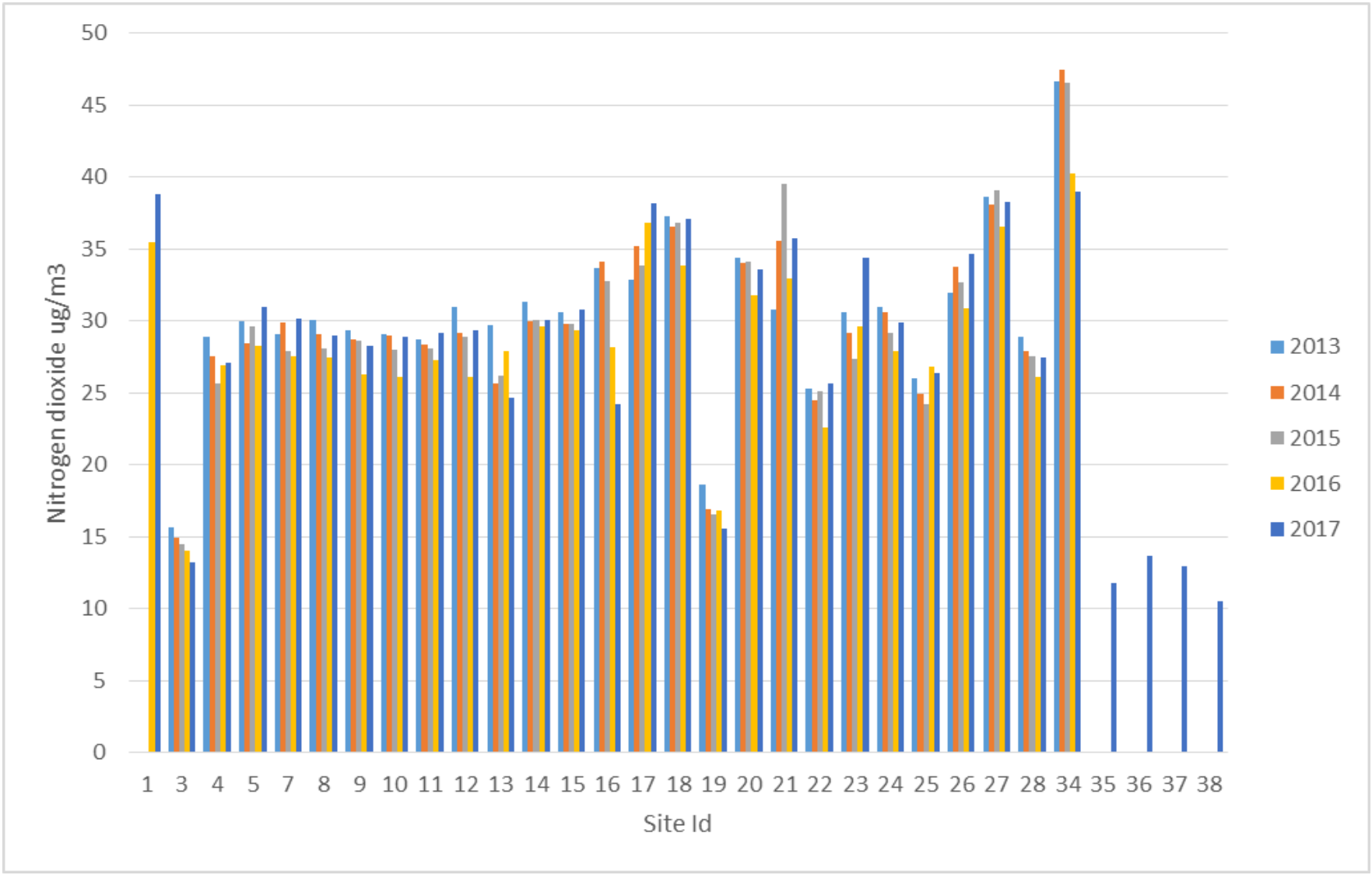
Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2013 (Bias Adjustment Factor = 0.75)	2014 (Bias Adjustment Factor = 0.78)	2015 (Bias Adjustment Factor = 0.80)	2016 (Bias Adjustment Factor = 0.71)	2017 (Bias Adjustment Factor = 0.74)
20	Roadside	N	34.4	34.0	34.1	31.8	33.6
21	Roadside	N	30.8	35.6	39.5	33	35.8
22	Roadside	N	25.3	24.5	25.1	22.6	25.7
23	Roadside	N	30.6	29.2	27.4	29.6	34.4
24	Roadside	N	31.0	30.6	29.2	27.9	29.9
25	Roadside	N	26.0	24.9	24.2	26.8	26.4
26	Roadside	N	32.0	33.8	32.7	30.9	34.7
27	Roadside	N	38.6	38.1	39.1	36.6	38.3
28	Roadside	N	28.9	27.9	27.6	26.1	27.5
34	Roadside	N	**46.7**	**47.5**	**46.6**	**40.3**	39.0
35	Urban background	N	-	-	-	-	11.8
36	Urban background	N	-	-	-	-	13.7
37	Roadside	N	-	-	-	-	13.0
38	Urban background	N	-	-	-	-	10.5

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

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

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

Figure 2.10 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



There were no breaches of the annual averaged air quality objective at any site in 2017. The only site that has failed to meet the annual averaged air quality objective during the last five years was the site at Victoria Gardens which was co-located with a continuous analyser. There is no relevant exposure at that site.

The following sites recorded the highest NO_2 annual average concentrations, which were above 38 µg/m^3:

- 1 Victoria Gardens, Neath
- 50 Greenway Road, Neath (next to above site)
- 11a Swansea Road, Pontardawe

All sites with relevant exposure complied with the annual averaged air quality objective.

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 2017 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)				
						2013* [c]	2014* [c]	2015 [c]	2016 [c]	2017 [c]
PT2	Industrial	Y	93	93	Y	19	24	27	22	23
DS1	Industrial	Y	41	41	Y	18	21	20	18	21
TW1	Industrial	Y	100	100	Y	20	27	26	24	21
TH1	Industrial	Y	74	74	Y	17	22	23	20	17
TR1	Roadside	Y	99	99	Y	21	22	22	16	16
LW1	Industrial	N	96	96	Y	19	25	24	21	21
DK1	Industrial	N	83	83	Y	17	20	20	20	17
PS2[d]	Industrial	Y	88	88	Y	31	26	n/a	23	25

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

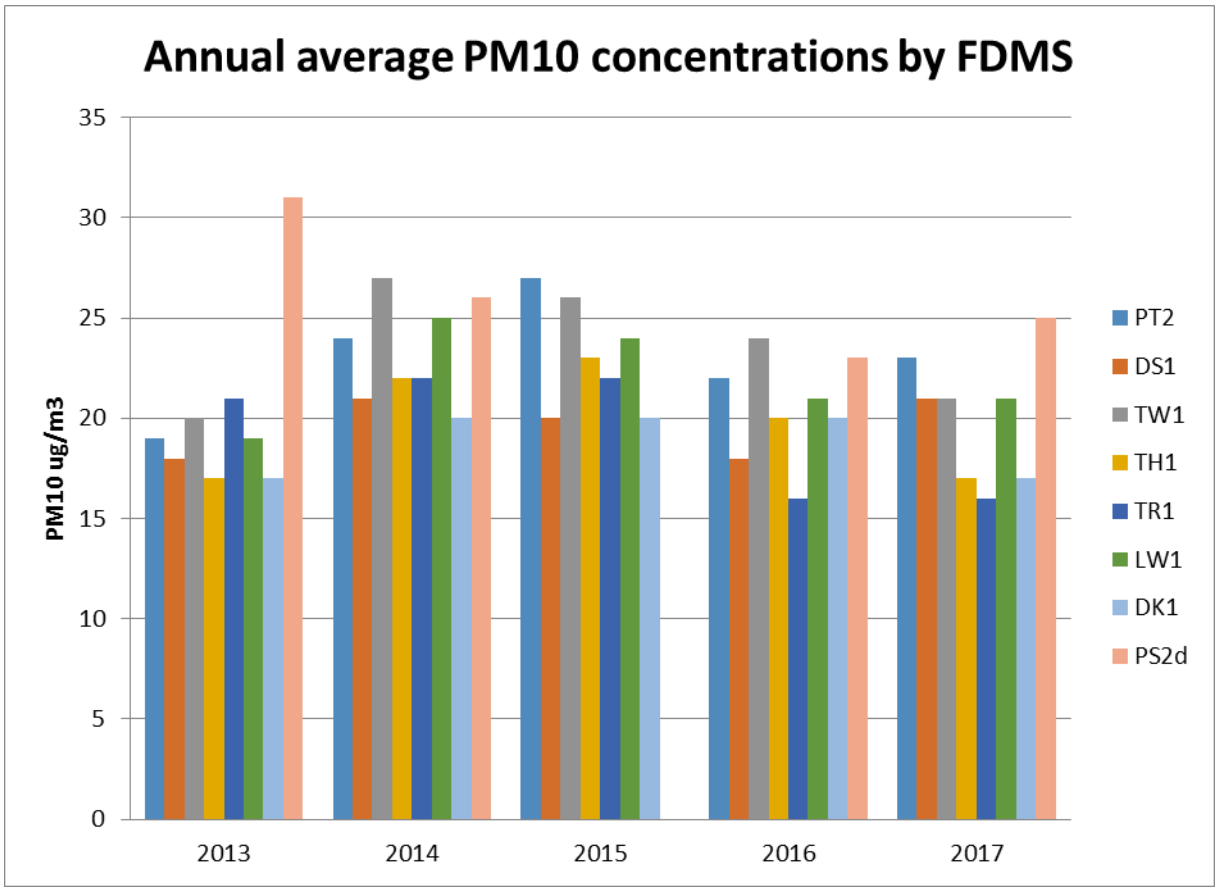
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[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 Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Figure 2.11 – Trends in Annual Mean PM_{10} Concentrations



No one site dominates in terms of the highest annual average, but Prince Street, Twll yn y Wal and Port Talbot Fire Station tend to record the highest annual averages.

However, the Twll yn y Wal site is not affected by exceedances of the short term average to the same extent as the other two sites.

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 2017 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3				
						2013* [c]	2014* [c]	2015 [c]	2016 [c]	2017 [c]
PT2	Industrial	Y	93	93	Y	34	16	28	8	17
DS1	Industrial	Y	41	41	Y	2	5	5	0	2
TW1	Industrial	Y	100	100	Y	9	6	10	4	3
TH1	Industrial	Y	74	74	Y	4	3	4	1	0
TR1	Roadside	Y	99	99	Y	15	6	4	0	0
LW1	Industrial	N	96	96	Y	21	22	15	9	16
DK1	Industrial	N	83	83	Y	10	4	6	2	1
PS2[d]	Industrial	Y	88	88	Y	**46**	17	n/a	9	18

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

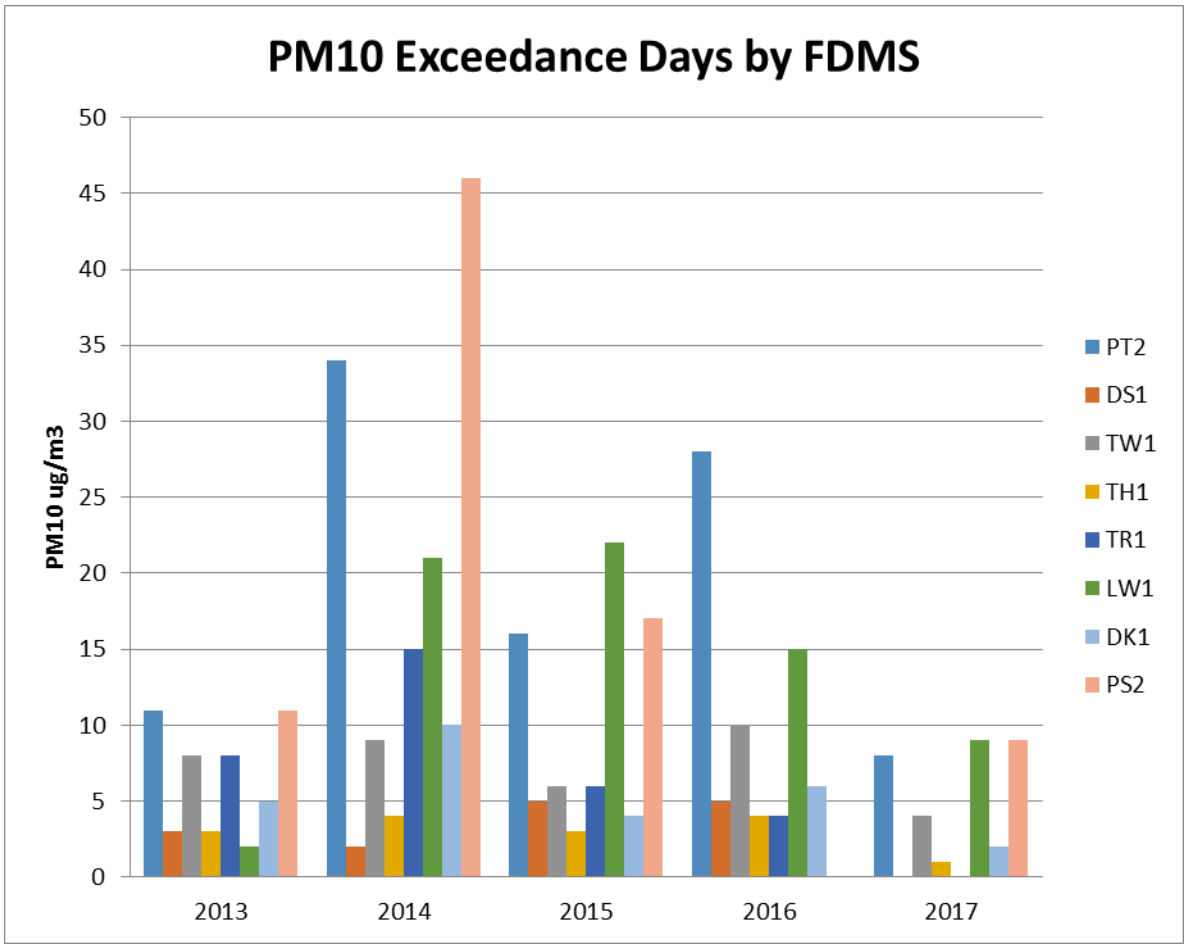
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[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

* Number of exceedances for previous years is optional

Figure 2.12 – Trends in PM_{10} exceedance days



Port Talbot Fire Station, Little Warren and Prince Street had tend to record the greatest number of exceedances of the short term average.

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 2015 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)
						2017 [c]
PT2P[d]	Industrial	Y	99	99	Y	23.4

In bold, exceedance 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 2.10 - Results of Non-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 2015 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3
						2017 [c]
PT2P[d]	Industrial	Y	99	99	Y	25

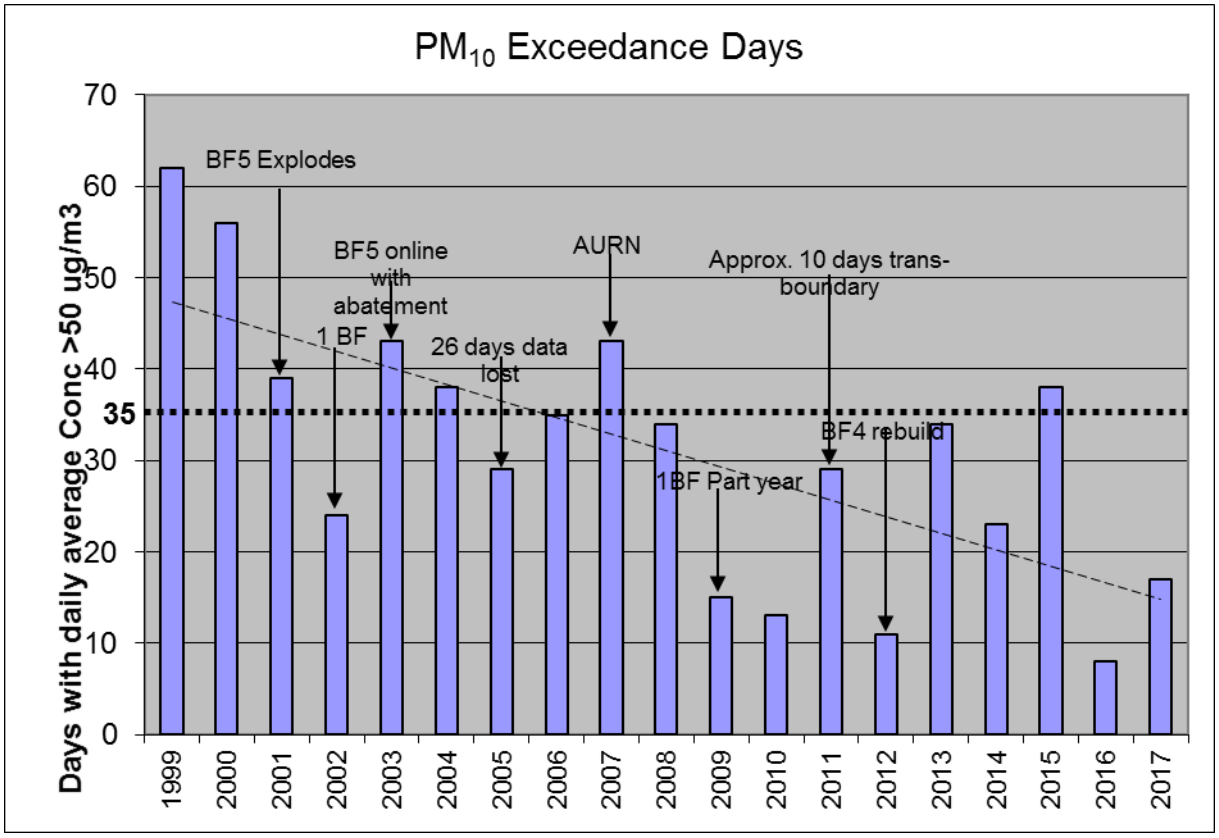
In bold, exceedance of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

[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

Figure 2.13 Trends in PM_{10} exceedances of the daily averaged Air Quality Objective at Port Talbot AURN



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

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

2010 was a very good year for PM_{10} compliance and it was also a year in which there was only one trans-boundary PM_{10} exceedance. By contrast, there were approximately 10 trans-boundary PM_{10} exceedance days during 2011.

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

The situation was much improved in 2014 where there were 16 exceedance days at the Fire Station using the FDMS equipment. But, the PM_{10} Partisol at Port Talbot Fire Station recorded 23 exceedances during the same period. As the data from

both pieces of equipment are considered to be valid, the Council has chosen to accept the higher of the two results.

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

2016 was one of the best years ever with only 8 exceedance days at Port Talbot Fire Station. This good result is tempered by the data capture rate, which was 2% below the target for the AURN (90%). The PM_{10} Partisol co-located at Port Talbot Fire Station had an acceptable data capture rate (97%) and recorded 11 exceedance days.

There were approximately double the number of exceedances in 2017 (17) compared to the previous year. This result is neither especially good nor particularly bad. The data capture rate at 90% was an improvement upon the previous year and exceeded the target of 90%.

2.2.3 Sulphur Dioxide (SO_2)

There were no exceedances of the 15 minute average of 266 µg/m^3 (up to 35 are allowed annually) during 2017 as measured at Port Talbot Fire Station, where the annual data capture rate was 98%. Neither were there any exceedances of the 350 µg/m^3 (maximum 155 µg/m^3) 1-hour mean or the 125 µg/m^3 daily mean (maximum 44 µg/m^3). The monitoring station site is representative of relevant public exposure as previously described.

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

Table 2.11 – 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 2017 % [b]	Number of: [c]		
					15-minute Means > 266µg/m^3	1-hour Means > 350µg/m^3	24-hour Means > 125µg/m^3
PT2	Urban industrial	Y	98	98	0	0	0

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

[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.

2.3 Other Pollutants Monitored

2.3.1.1 Lead

Lead is monitored at Pontardawe Leisure Centre as part of a study of 13 metals that has continued since 1972. A Thermo Partisol® 2025 gravimetric sampling system is used to collect daily samples using Pall Gelman GN4-Metricel filters. These are exposed on a weekly basis and subsequently analysed using inductively coupled mass spectrometry (ICP-MS). The results for 2017 show that the annual average concentration of lead was 6.2 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 the National Physical Laboratory.

Lead is also measured at Milland Road in Neath, where the annual average concentration was 7.2 ng/m3 during 2017.

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 7.8, 6.1 and 6.5 ng/m^3 respectively, all of which easily comply with the Air Quality Objective.

2.3.1.2 Carbon monoxide

There were no exceedances of the 8-hour average of 10 mg/m^3 (maximum 6.0 mg/m^3) during 2017. The monitoring station site is representative of relevant public exposure as previously described.

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

Table 2.12 - Results of Automatic Monitoring of carbon monoxide

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2016 %[b]	Number of Exceedances (percentile in bracket µg/m^3)[c]
					8 hour running mean > 10 mg/m^3
PT2	Urban industrial	Y	98	98	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

2.3.1.3 $PM_{2.5}$

$PM_{2.5}$ 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 and Prince Street (since 18th March 2014).

The data capture at the Fire Station site and Prince Street sites were 94%, and 93% respectively.

The annual average concentrations at Port Talbot Fire station and Prince Street were 10 mg/m^3 and 10 mg/m^3 respectively.

The annual average $PM_{2.5}$ concentrations at sites in Port Talbot were well below both the target and limit values to be achieved by 2015.

2.3.1.4 Ozone

Ozone is a highly reactive chemical which, when present in the lower atmosphere at high concentrations, can irritate the eyes and air passages, causing breathing difficulties. Ozone is a so-called secondary pollutant since it is produced indirectly by the reaction between hydrocarbons, NO_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.

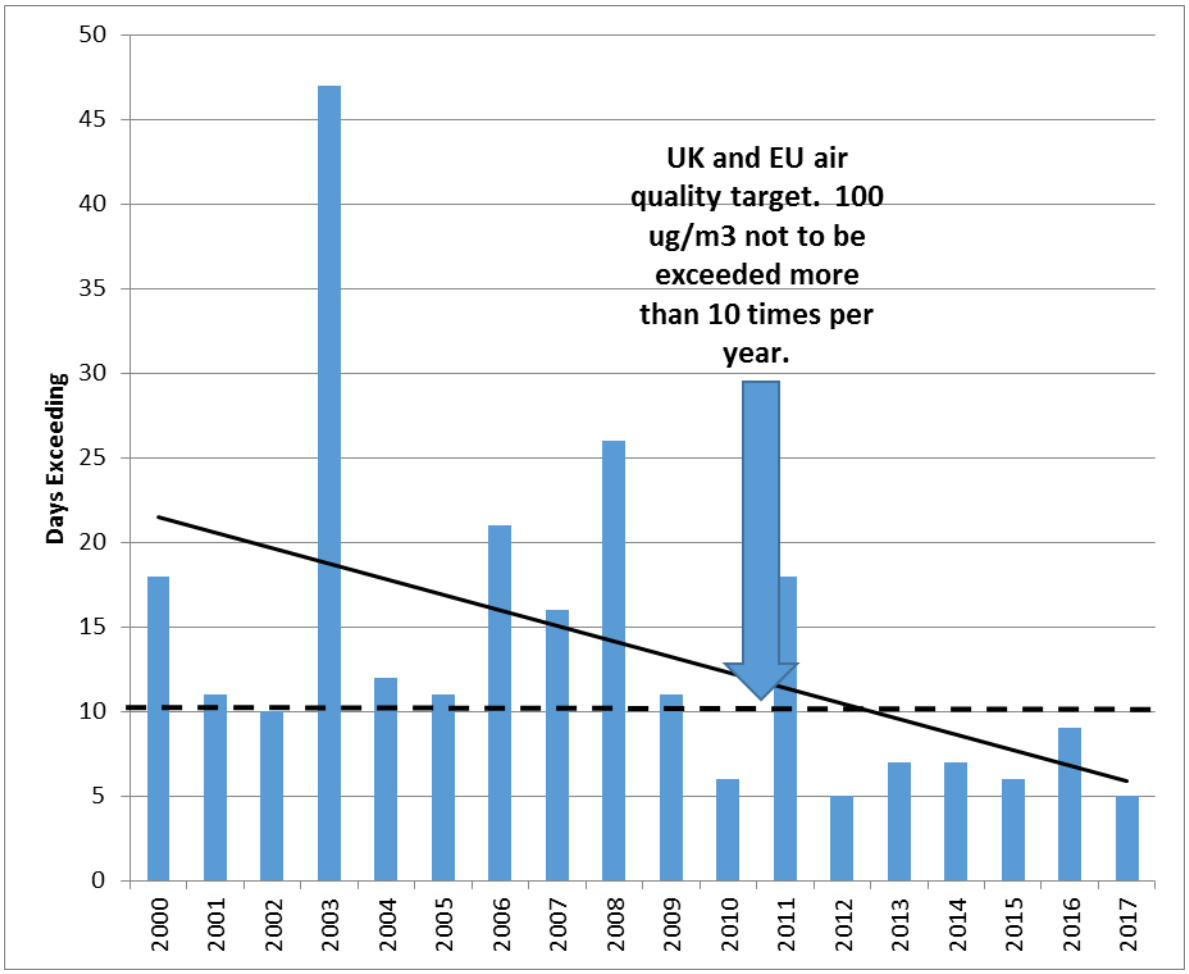
No statutory Air Quality Objective level for Ozone has been set, owing to the potential for trans-boundary sources. However, there is a recommended Air Quality objective for ozone of 100 µg/m^3, measured as a rolling 8 hour average. This was breached on 34 occasions on a total of 5 days at the Fire Station.

The long term trend for ozone exceedances shows a slight improvement over time as shown in Table 2.13 and Figure 2.16 below.

Table 2.13 – Annual ozone exceedances 2000 – 2017

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
2014	40	7
2015	40	6
2016	81	9
2017	34	5

Figure 2.14 - Days of ozone exceedances of the UK recommended AQO since 2000



2.3.1.5 **Polyaromatic hydrocarbons (PAH)**

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

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

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 2015.

Table 2.14. – Benzo[a]pyrene annual averages 1999-2016

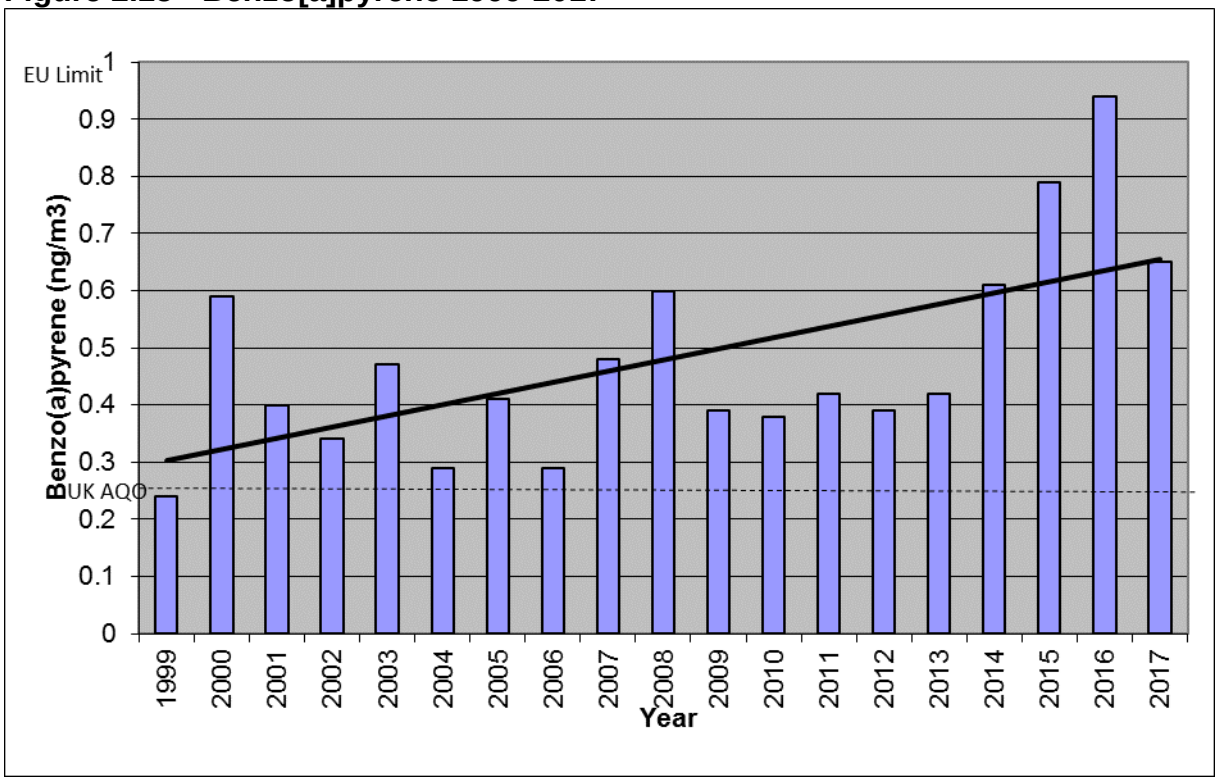
B[a]P ng/m^3	Year
0.24	1999
0.59	2000
0.40	2001
0.34	2002
0.47	2003
0.29	2004
0.41	2005
0.29	2006
0.48	2007
0.60	2008
0.39	2009
0.37	2010
0.42	2011
0.39	2012
0.42	2013
0.61	2014
0.80	2015
0.94	2016
0.65	2017

The results are shown graphically in figure 2.15 below. The B[a]P concentration at Port Talbot frequently exceeds the Air Quality Objective of 0.25 ng/m^3, but has never

exceeded the EU target value of 1 ng/m^3 thus far. The increasing trend observed in recent years has been reversed in 2017 with a reduction of approximately 30% compared to the previous year.

A report by Ricardo 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 2.15 - Benzo[a]pyrene 1999-2017



2.3.1.6 Metals monitoring

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

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)
- Manganese (Mn)
- Vanadium (V)

In December 2004 the European Union published a Directive relating to arsenic, cadmium, mercury, nickel and 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

2.3.1.6.1 Pontardawe Leisure Centre

The annual mean nickel concentration found in 2017 was 10.3 ng/m^3, which is 51% 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 0.64 ng/m^3 and 0.28 ng/m^3 respectively. These concentrations represent approximately 1.7% and 5.6% 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.

2.3.1.6.2 Port Talbot

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

The nickel concentration at Port Talbot in 2017 (1.3 ng/m^3) was 6.5% the EU Target of 20 ng/m^3.

The annual mean concentrations of arsenic and cadmium have been found to be 0.75 ng/m^3 and 1.4 ng/m^3 respectively. These concentrations represent approximately 12.5% and 28% 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 Port Talbot was 2897 ng/m^3. This does not represent a concern in respect of health, but it represents approximately 12% of the PM_{10} measured in Port Talbot and highlights the influence of the Port Talbot steelworks.

2.3.1.6.3 Pontardawe Tawe Terrace

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

The average concentration of nickel in 2017 was 18.3 ng/m^3 which is 92% of the Target value. This is an improvement upon the figure recorded in 2017 (22.1 ng/m3) and the first time the Target has been complied with at this site.

The annual mean concentrations of arsenic and cadmium have been found to be 0.75 ng/m^3 and 0.34 ng/m^3 respectively. These concentrations represent approximately 12.5% and 6.8% of their EU target values of 6 and 5 ng/m^3 respectively.

2.3.1.6.4 Brecon Road, Pontardawe

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

The average concentration of nickel in 2015 was 9.23ng/m^3 which is 46.2% of the Air Quality Objective.

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

2.3.1.6.5 Milland Road, Neath

The monitoring station was set up in Milland Road car park in December 2014. It lies between the Sandvik Osprey plant and the nearest receptors in King Street.

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 2017 was 3.45 ng/m^3 which is 17.3% of the Air Quality Objective.

The annual mean concentrations of arsenic and cadmium have been found to be 0.68 ng/m^3 and 0.40 ng/m^3 respectively. These concentrations represent approximately 11.0% and 8.0% of their EU target values of 6 and 5 ng/m^3 respectively.

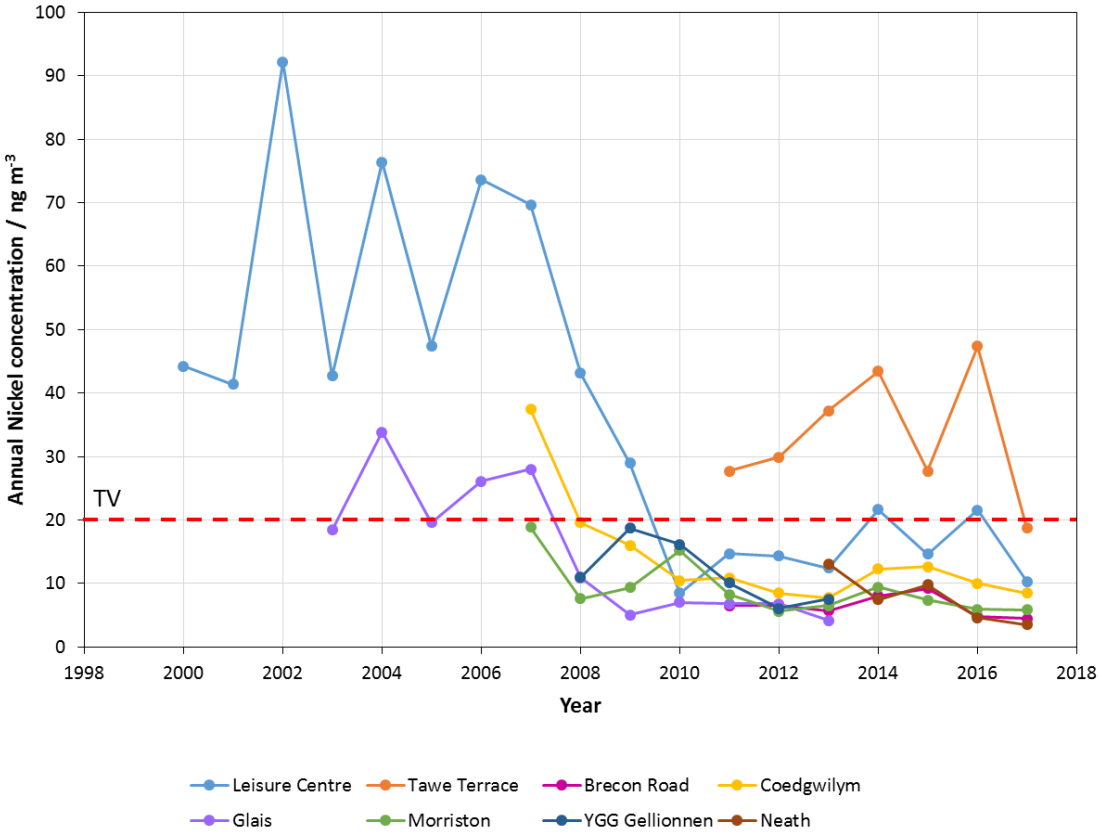
The metals results for 2017 are summarised in Table 2.15 below.

Table 2.15 - Annual average metal concentrations during 2017

Element	2017 annual mean concentration (ng/m^3)				
	Port Talbot Fire Station	Pontardawe Brecon Road	Pontardawe Leisure Centre	Pontardawe Tawe Terrace	Neath Milland Road
As	0.75	1.04	0.64	0.75	0.68
Cd	1.40	0.15	0.28	0.34	0.40
Ce		-	0.13	-	-
Co	0.22	0.24	0.54	1.04	0.84
Cr	0.96	1.13	3.13	5.53	5.63
Cu	9.93	5.43	6.42	5.90	16.7
Fe	2897	225	194	240	506
Hg*	-	-	-	-	
Mn	34.1	3.75	4.77	5.26	10.6
Ni	1.30	9.23	10.3	18.3	3.45
Pb	7.80	6.10	6.20	6.50	7.20
Sb	-	-	1.14	-	-
Sc	-	-	0.07	-	-
Se	0.65	0.16	0.49	0.27	0.59
Zn	42.4	10.7	10.6	13.2	19.6
V	3.65	0.81	0.84	0.84	1.09

The following chart shows the nickel results from all sites in the Swansea Valley since 2000. Some data is from monitoring sites operated by Swansea City Council.

Figure 2.16 - Nickel trends 2000 – 2017



Note: Graph produced by Richard Brown of NPL.

Figure 2.17 shows the location of all of these monitoring sites and the annual average concentrations.

Figure 2.17 Location of nickel monitoring stations in the Swansea Valley

Note: Graph produced by Richard Brown of NPL.

There are no sites that currently exceed the E.U. Target of 20 ng/m^3. Levels of nickel at Tawe Terrace (18.3 ng/m^3) decreased substantially compared to the 2016 value (47.4 ng/m^3). This is the best result to date and the first occasion when the Target has been complied with at Tawe Terrace.

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

Lead results have been discussed in section 2.2.5.1 above.

2.3.1.7 Grit and dust monitoring

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

The report includes results from the following locations:

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

Pie charts and time series graphs are presented for each site for 2013 and the preceding year as a comparison. The pie charts show the average percentage composition of the samples collected during the year, with the average fallout rates of each component in mg/m^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 2.18. Figures 2.19 to 2.42 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 2.43 shows the average fallout rate for each site during 2016 in a bar chart, and Table 2.17 holds the data for this chart. The sites are ranked in a table and graphically according to the average fallout rate. Figure 2.44 and Table 2.18 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 2.16 - 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

2.3.1.7.1 Cil Carne Farm, Bryn, Port Talbot (Figs. 2.19 & 2.20) **Low** **+41%**

The "nuisance limit" was not exceeded in 2017 and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 53 mg/m^2/day and the average 24 mg/m^2/day, the corresponding values for 2016 were 32 and 17 mg/m^2/day respectively. There was 41% increase in fallout rates compared to the previous year.

2.3.1.7.2 Prince Street, Port Talbot (Figs. 2.21 & 2.22) **High** **-2%**

The "nuisance limit" (200 mg/m^2/day) was exceeded on 84 days in 2017 and there were a further 57 days within 10% of the "nuisance limit". During the previous year there were exceedances on 56 days exceeding and 41 within 10%. In 2017, the maximum fallout rate was 304 mg/m^2/day and the average 148 mg/m^2/day, the corresponding values for 2016 were 265 and 141 mg/m^2/day respectively. The average fallout rate fell by 2%.

2.3.1.7.3 Port Talbot Fire Station (Figs. 2.23 & 2.24) **High** **-12%**

The "nuisance limit" was exceeded on 84 days during 2017 but there were 57 days within 10% of the "nuisance limit". The corresponding figures for 2016 were 160 days exceeding the "nuisance limit" and no days within 10%. The maximum fallout rate was 292 mg/m^2/day and the average 134 mg/m^2/day, and the corresponding values for 2016 were 245 and 153 mg/m^2/day respectively. There was a 12% decrease in fallout rates compared to the previous year, which was mainly due to reductions in iron rich and plant material.

2.3.1.7.4 Eglwys Nunydd Reservoir, Port Talbot (Figs. 2.25 & 2.26) **Moderate** **+7%**

The "nuisance limit" was not exceeded during 2017 and there were no days within 10% of the "nuisance limit". This was also the case in 2016. The maximum fallout rate was 89 mg/m^2/day and the average 48 mg/m^2/day, and the corresponding values for 2016 were 84 and 45 mg/m^2/day respectively. There was a 7% increase in fallout rates compared to the previous year.

2.3.1.7.5 Gwaun Cae Gurwen (Figs. 2.27 & 2.28) **Low** **+47%**

The "nuisance limit" was not exceeded during 2017 and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 79 mg/m^2/day and the average 25 mg/m^2/day, and the corresponding values for 2016 were 27 and 17 mg/m^2/day respectively. There was a 47% decrease in fallout rates compared to the previous year.

2.3.1.7.6 **Tairgwaith** (Figs. 2.29 & 2.30) **Low** **+24%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 63 mg/m^2/day and the average 26 mg/m^2/day, the corresponding values for 2016 were 42 and 21 mg/m2/day respectively. There was 24% increase in fallout rates compared to the previous year.

2.3.1.7.7 **Parish Road, Cwmgwrach** (Figs. 2.31 & 2.32) **Low** **+11%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 48 mg/m^2/day and the average 20 mg/m^2/day, the corresponding values for 2016 were 43 and 18 mg/m2/day respectively. There was a 11% increase in fallout rates compared to the previous year.

2.3.1.7.8 Llygad yr Haul, Glynneath (Figs. 2.33 & 2.34) **Low** **+22%**

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m$_2$/day. The maximum fallout rate was 153 mg/m^2/day and the average 28 mg/m^2/day, the corresponding values for 2016 were 50 and 23 mg/m^2/day respectively. There was a 22% increase in fallout rates compared to the previous year.

2.3.1.7.9 Wembley Avenue, Onllwyn (Figs. 2.35 & 2.36) **Moderate** **+75%**

The "nuisance limit" was not exceeded but there were 28 days within 10% of 200 mg/m^2/day. The maximum fallout rate was 182 mg/m^2/day and the average 42 mg/m^2/day, the corresponding values for 2016 were 52 and 24 mg/m^2/day respectively. This represented an increase of 75%, which was mainly due to increases in coal and plant/animal fragments.

2.3.1.7.10 Little Warren, Port Talbot (Figs. 2.37 & 2.38) **Low** **-24%**

The "nuisance limit" was not exceeded in 2017 and there were no days within 10% of 200 mg/m^2/day. The maximum fallout rate was 71 mg/m^2/day and the average 39 mg/m^2/day, the corresponding values for 2016 were 85 and 51 mg/m^2/day respectively. There was a 24% decrease in fallout rates compared to the previous year.

2.3.1.7.11 Dyffryn School, Port Talbot (Figs. 2.39 & 2.40) **Moderate** **-6%**

The "nuisance limit" was not exceeded during 2017 and there were no days within 10% of the "nuisance limit". The maximum fallout rate was 105 mg/m^2/day and the average 61 mg/m^2/day, and the corresponding values for 2016 were 124 and 65 mg/m^2/day respectively. There was a 6% decrease in fallout rates compared to the previous year.

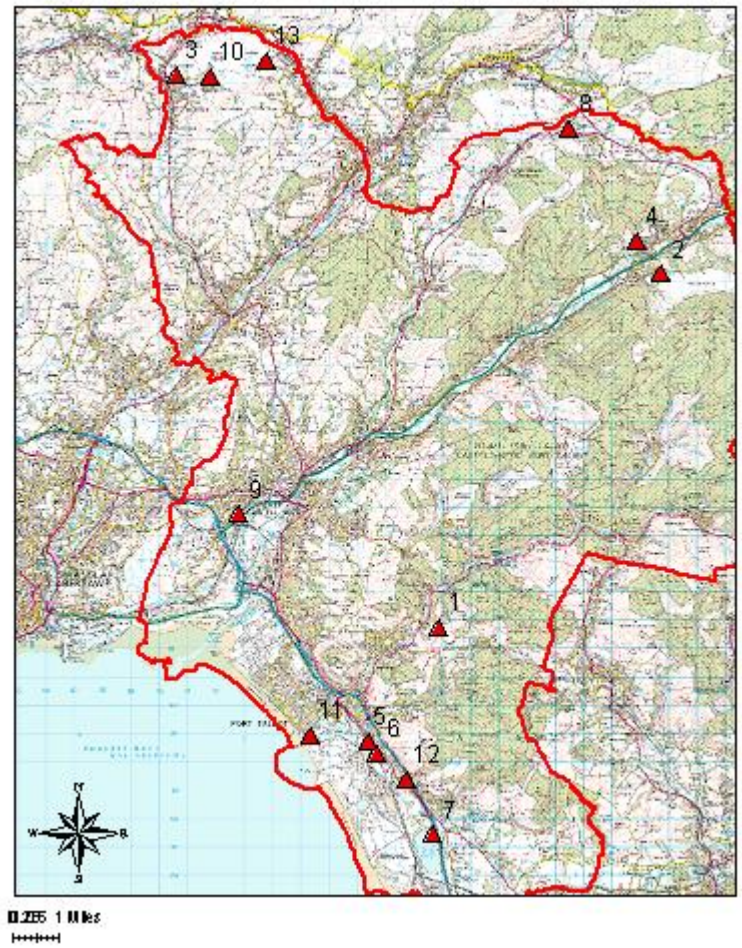
2.3.1.7.12 Cwmllynfell (Figs. 2.41 & 2.42) **Moderate** **-28%**

The "nuisance limit" was not exceeded during 2017 and no samples were within 10% of the "nuisance limit". The maximum fallout rate was 171 mg/m^2/day and the average 77 mg/m^2/day, and the corresponding values for 2016 were 177 and 107 mg/m^2/day respectively. There was an 28% decrease in fallout rates compared to the previous year, which was mainly due to more dirt and coal.

2.3.1.7.13 Summary

The sites at Prince Street and Port Talbot Fire Station remain as top ranked in terms of average fallout rate, and Cwmllynfell remains 3rd highest, which is probably due to opencast activity in the area. Although there was a 75% increase in fallout rates at Onllwyn, this was mainly due to one high monthly result and the annual average remained acceptable.

Figure 2.18 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 Reservoir, Margam, Port Talbot
8	11, Wembley Avenue, Onllwyn
9	Cardonnel Road, Skewen
10	Workingmen's Club, Tairgwaith
11	Little Warren, Aberafan, Port Talbot
12	Dyffryn School, Margam, Port Talbot
13	Ochwr y Waun, Cwmllynfell

Figure 2.19 Cil Carne Farm pie charts

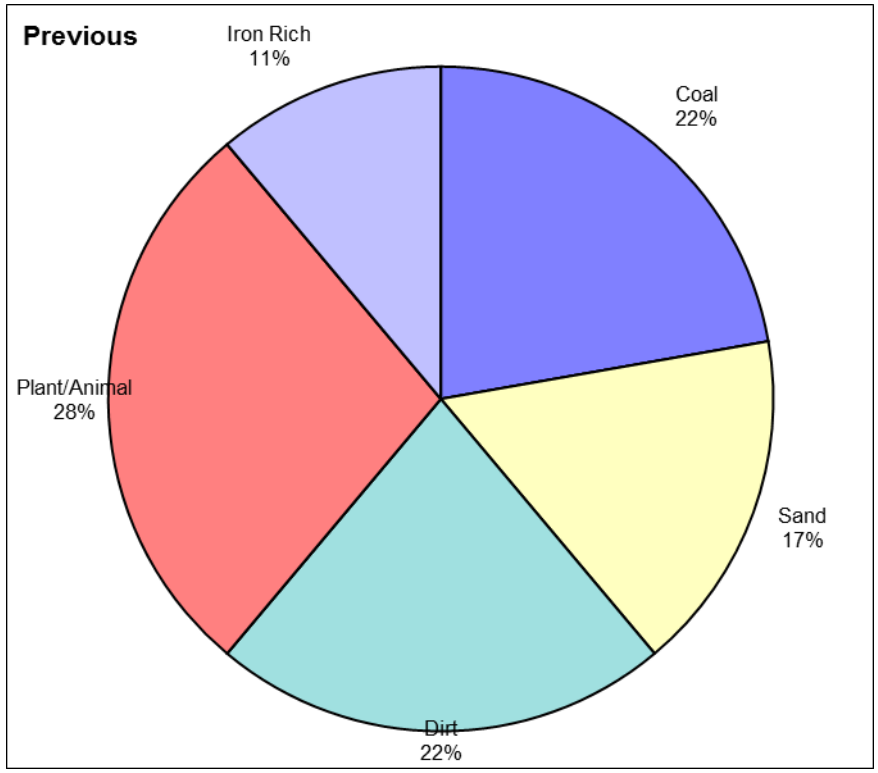
Deposit Gauge Analysis Report

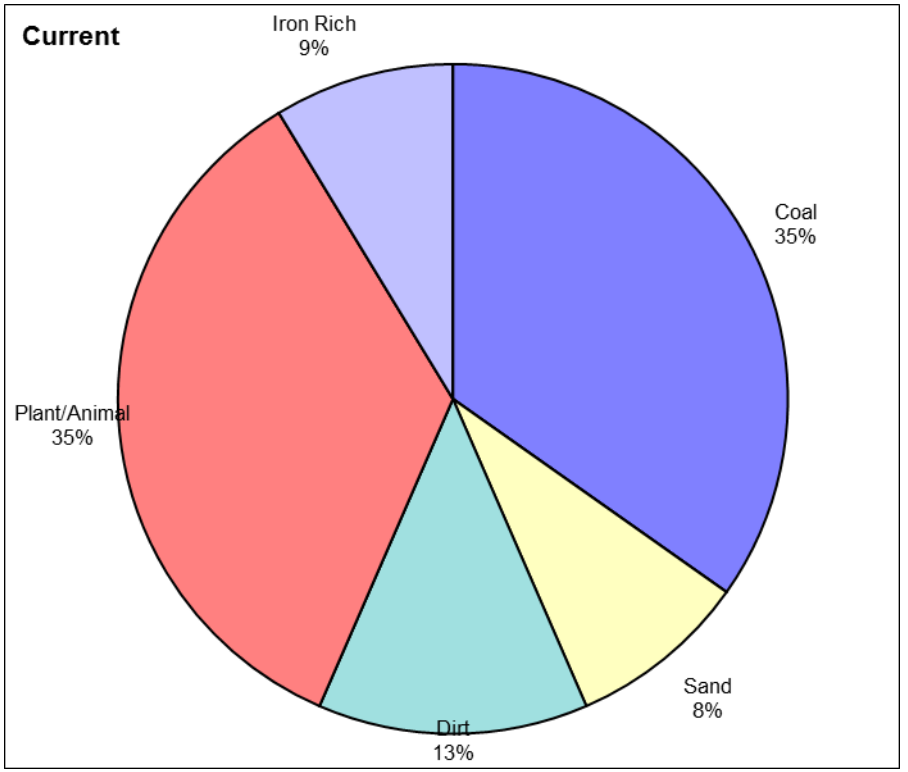
Cil Carne Farm, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	8	0	2	3	0	8	0	2	0
	Previous	4	0	3	4	0	5	0	2	0

Figure 2.20 Cil Carne Farm fallout rates

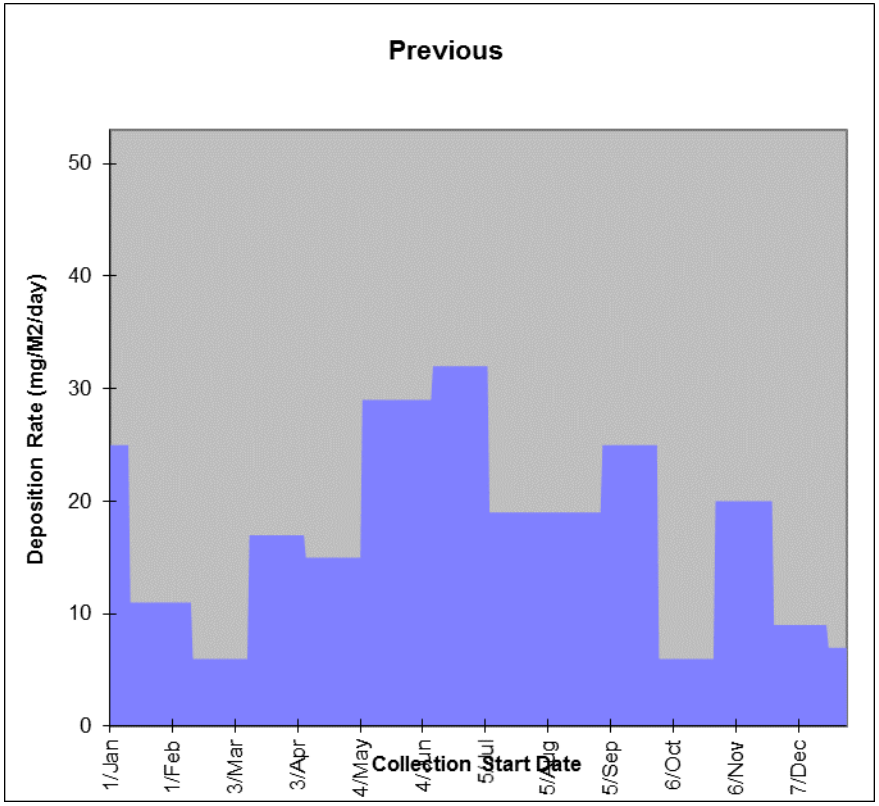
Deposit Gauge Analysis Report

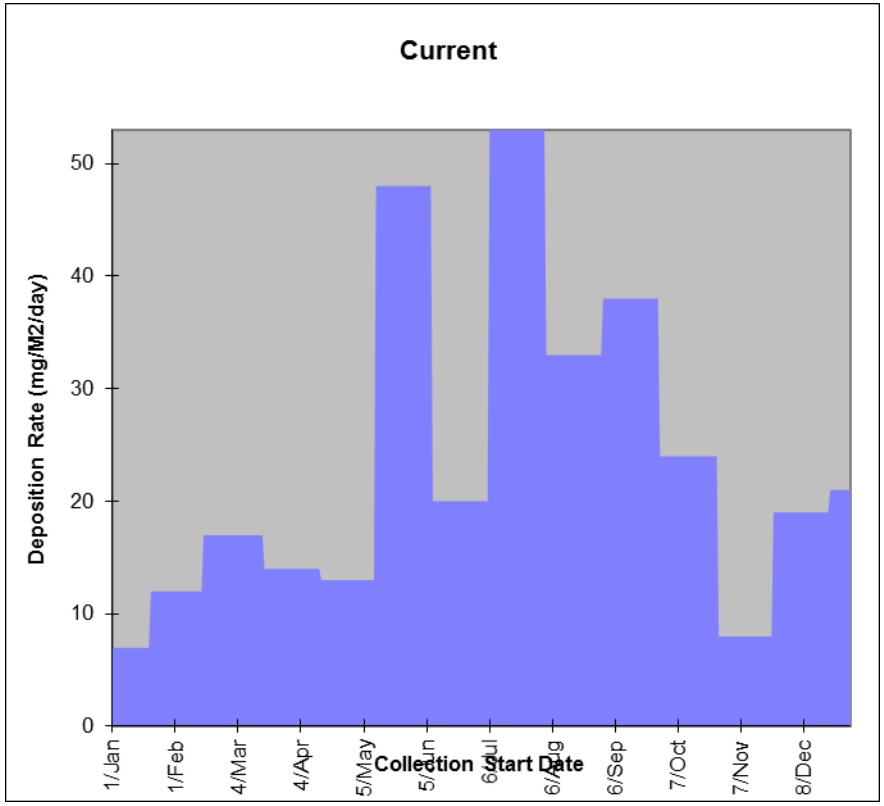
Cil Carne Farm, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	24	53	13	100.0	0	0
Previous	17	32	13	100.0	0	0
Change	7	Increase 41%				

Figure 2.21 Prince Street pie charts

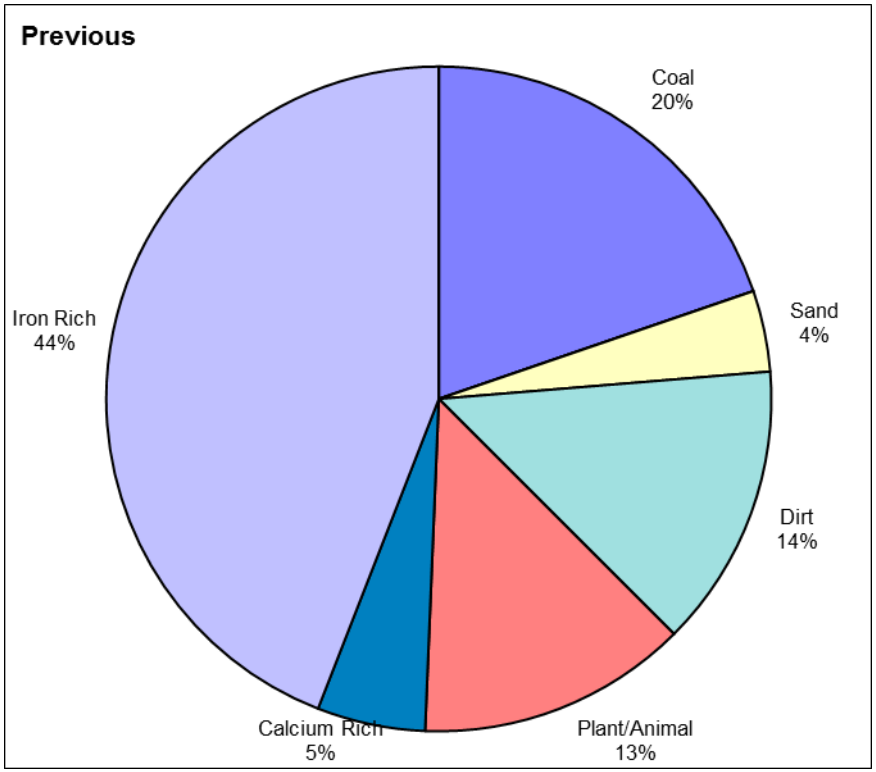
Deposit Gauge Analysis Report

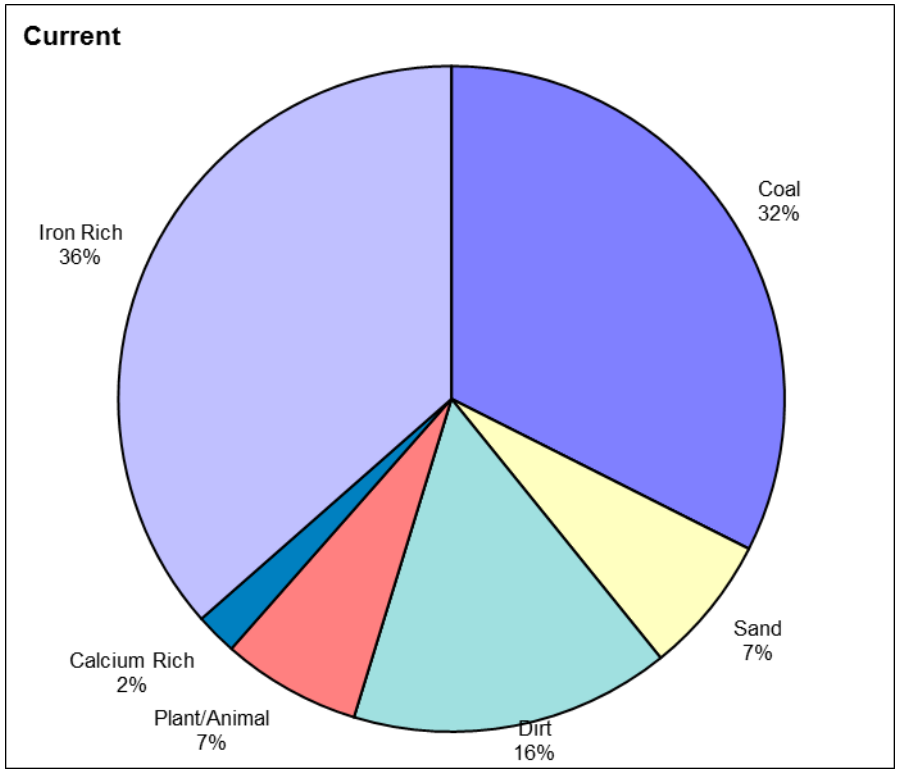
24, Prince Street, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	48	0	10	23	0	10	3	54	0
	Previous	30	0	6	21	0	20	8	67	0

Figure 2.22 Prince Street fallout rates

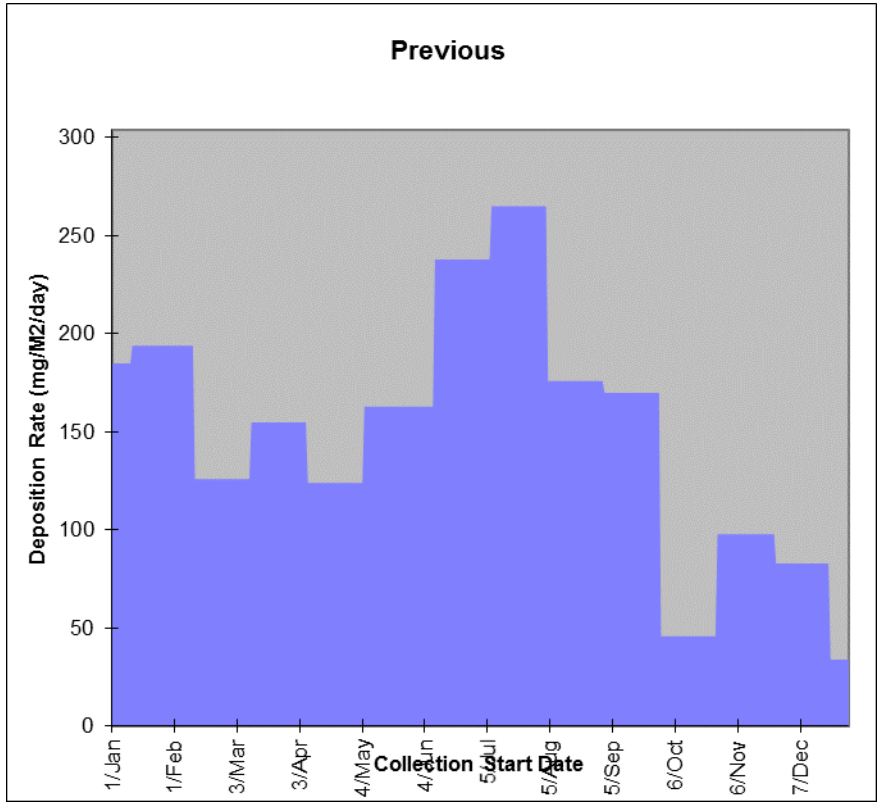
Deposit Gauge Analysis Report

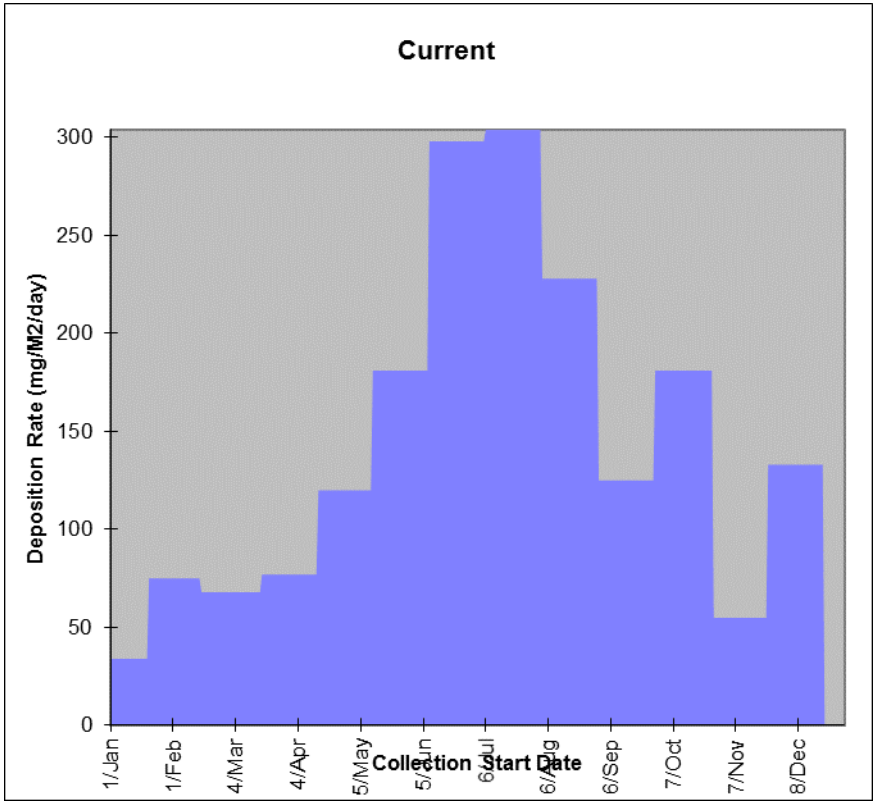
24, Prince Street, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	148	304	12	97.0	57	84
Previous	151	265	13	100.0	41	56
Change	-3	Decrease -2%				

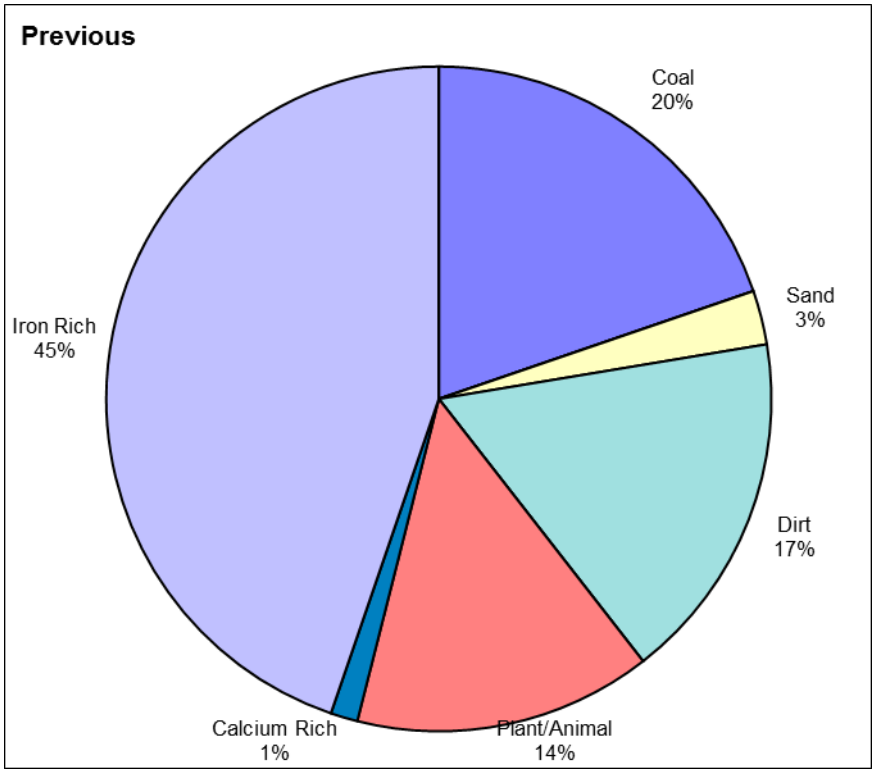
Deposit Gauge Analysis Report

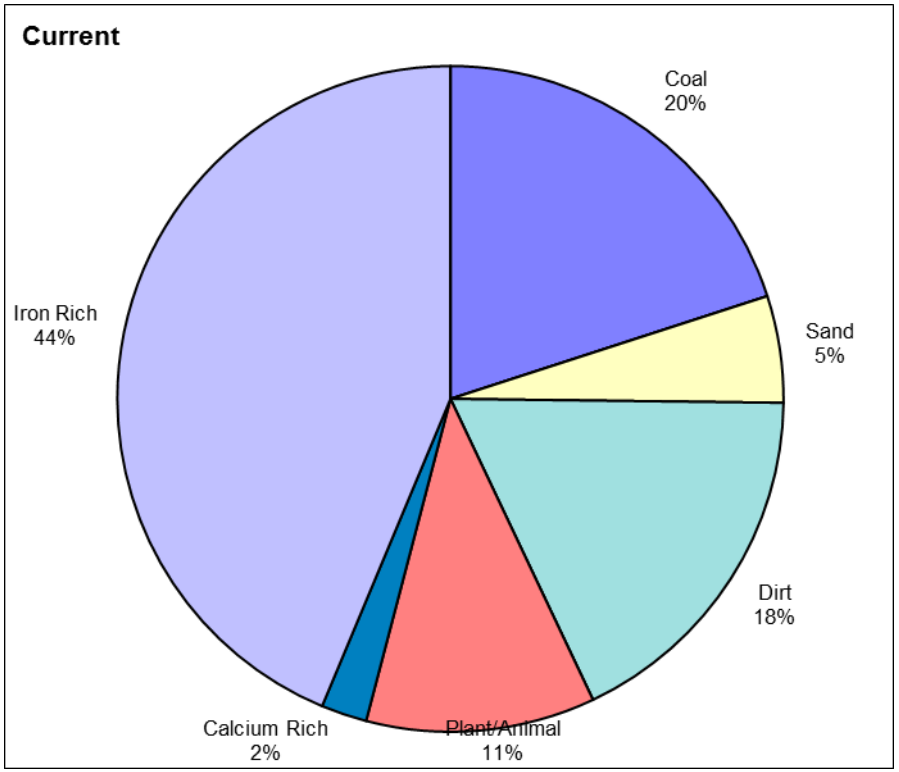
Port Talbot Fire Station

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	27	0	7	24	0	15	3	59	0
	Previous	30	0	4	26	0	22	2	68	0

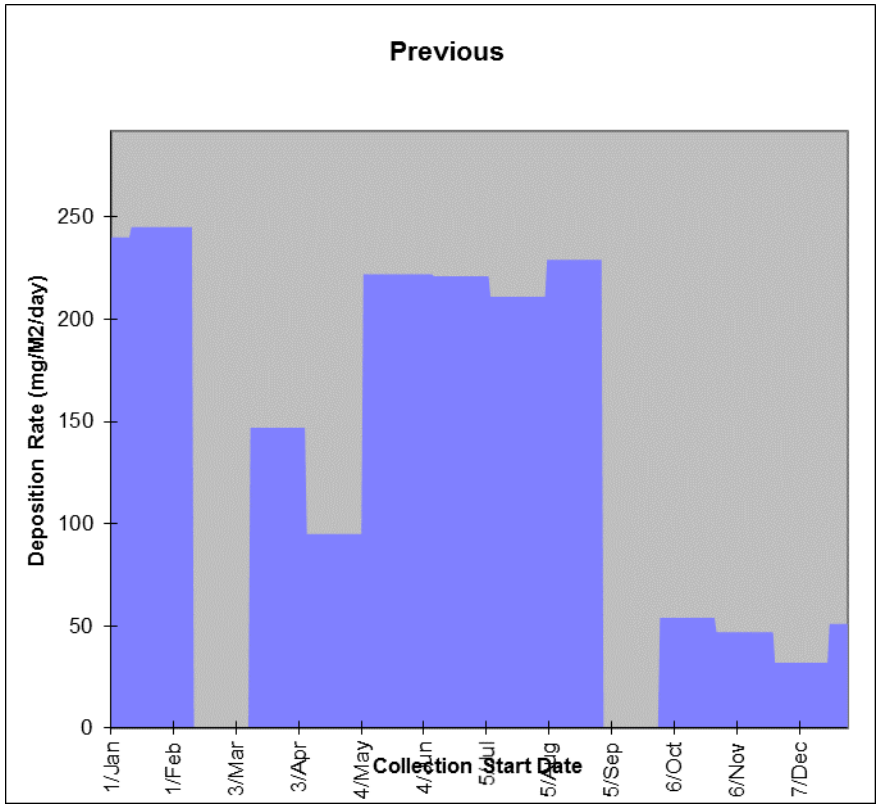
Deposit Gauge Analysis Report

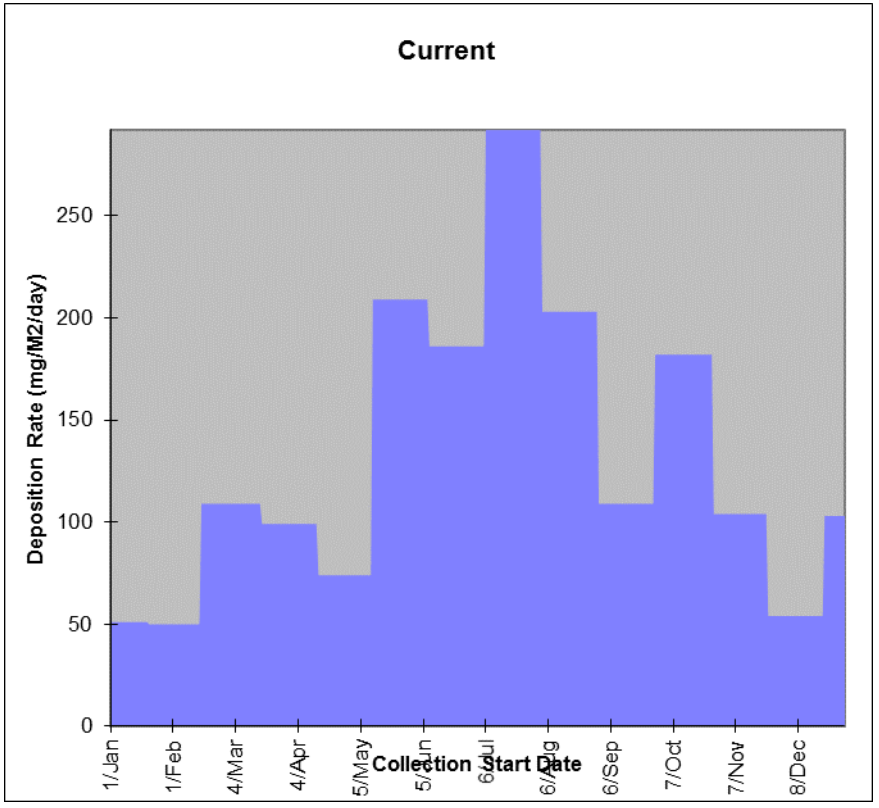
Port Talbot Fire Station

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	134	292	13	100.0	57	84
Previous	153	245	11	84.3	0	160
Change	-19	Decrease -12%				

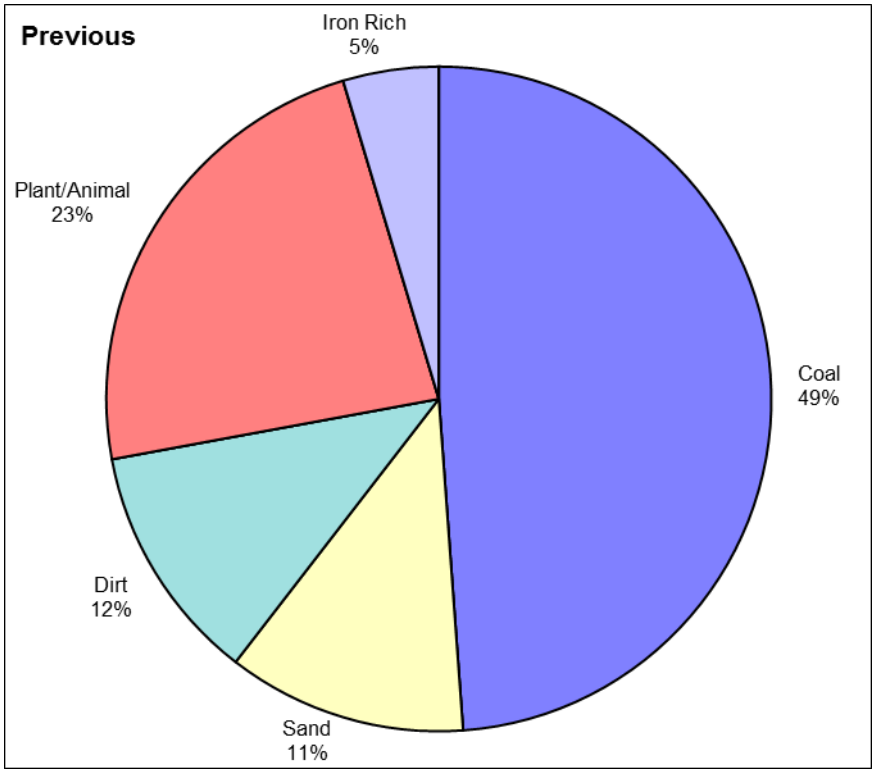
Deposit Gauge Analysis Report

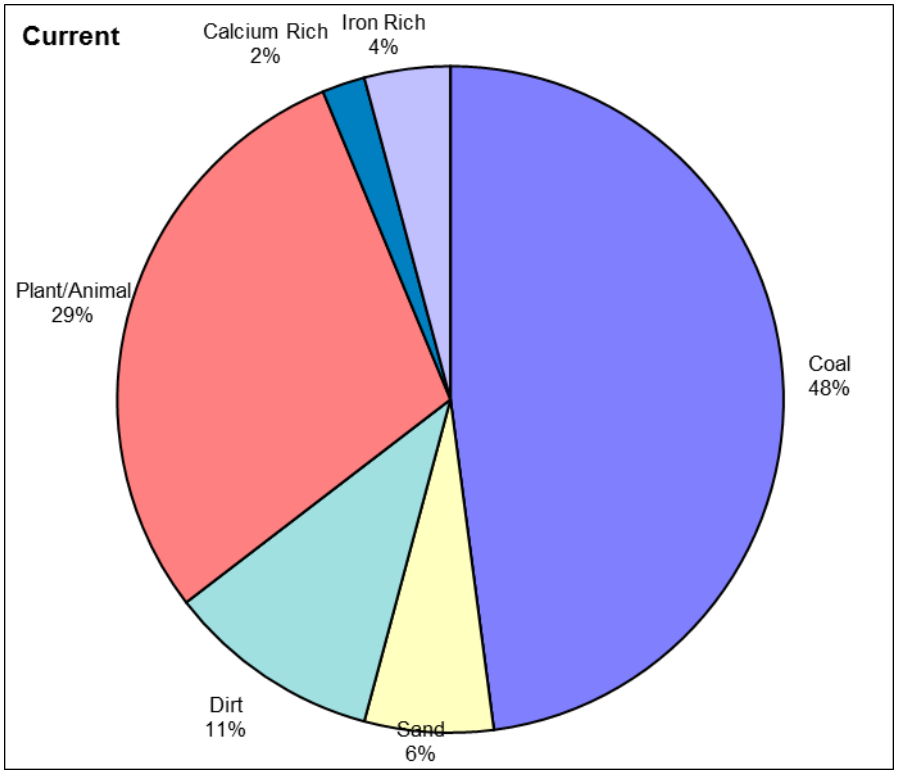
Eglwys Nunydd Reservoir, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	3	5	0	14	1	2	0
	Previous	21	0	5	5	0	10	0	2	0

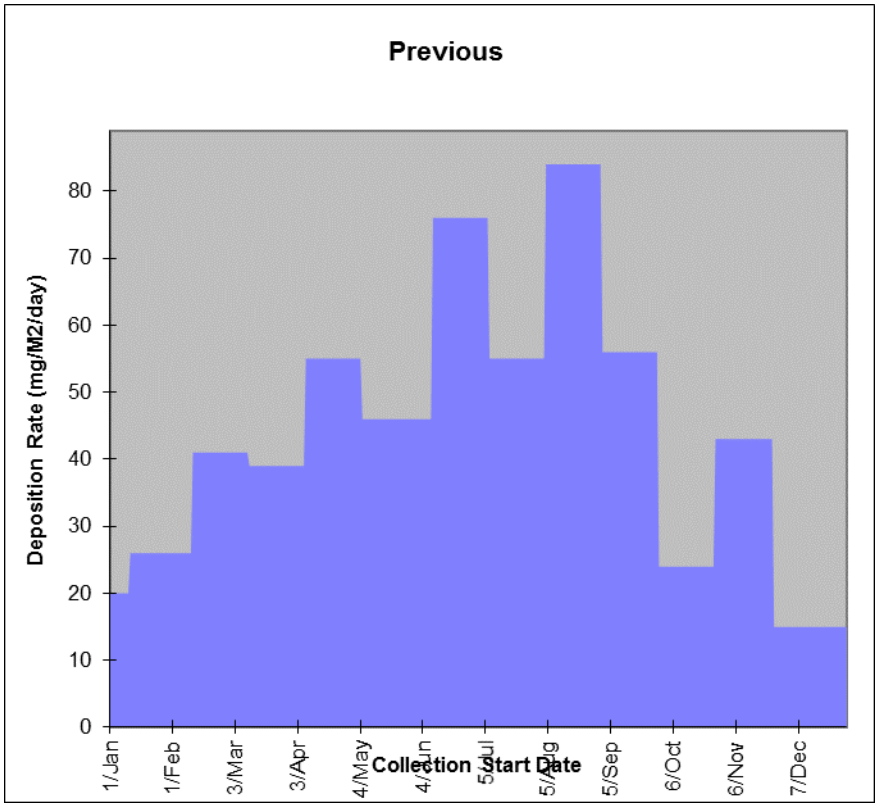
Deposit Gauge Analysis Report

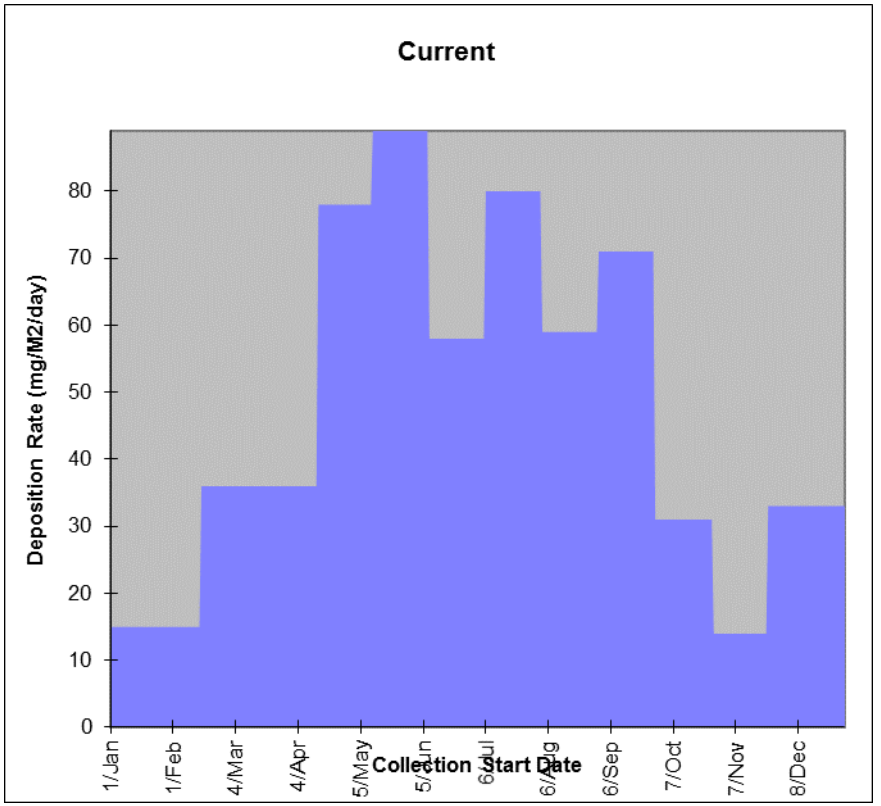
Eglwys Nunydd Reservoir, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	48	89	13	100.0	0	0
Previous	45	84	13	100.0	0	0
Change	3	Increase 7%				

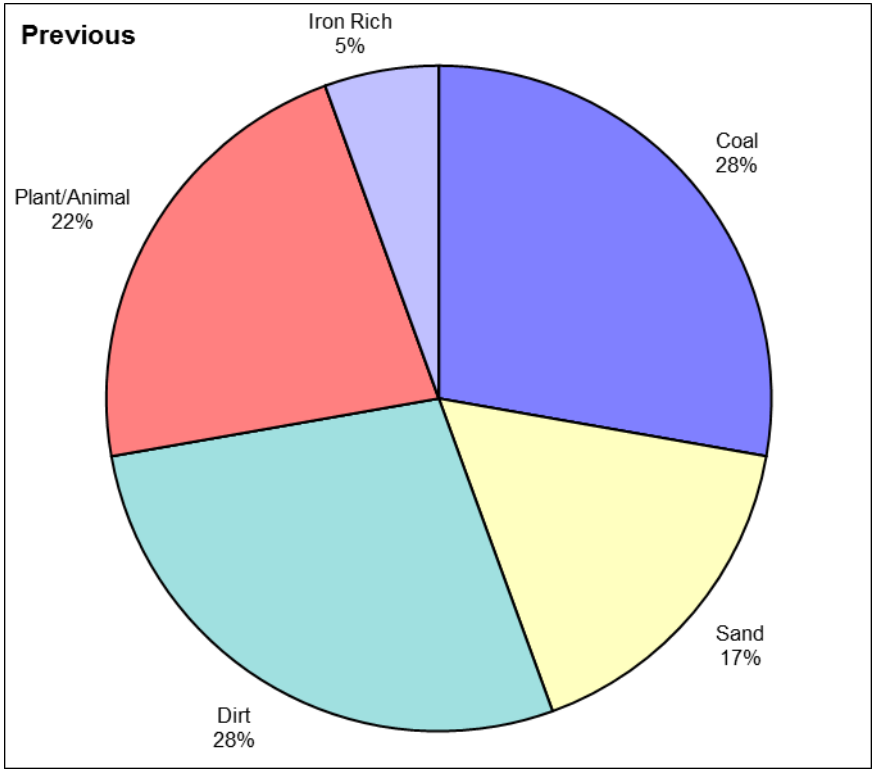
Deposit Gauge Analysis Report

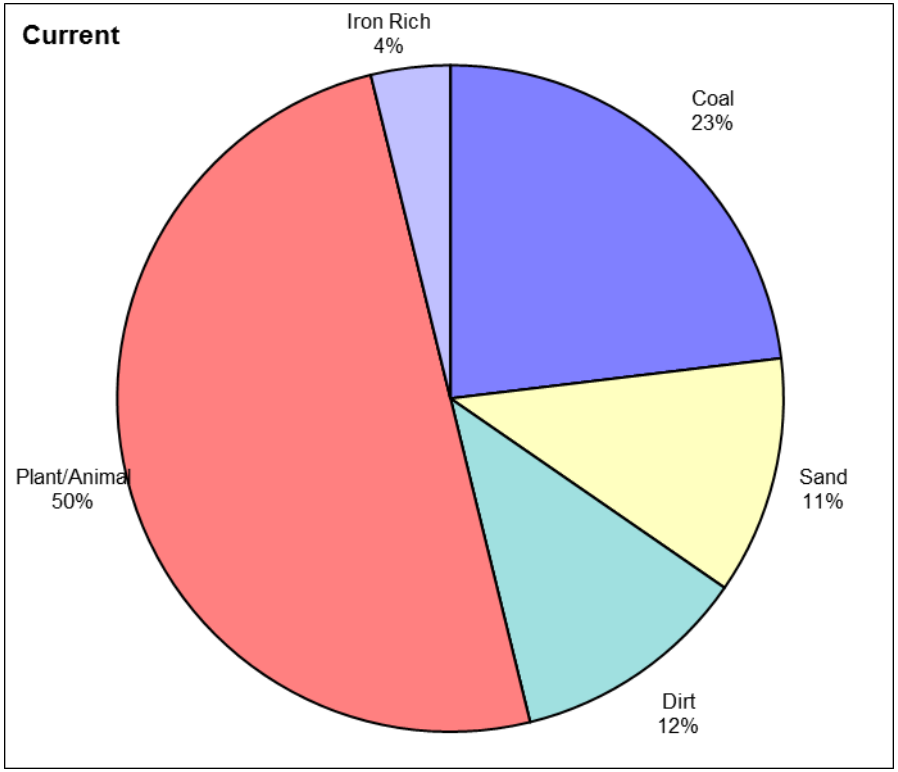
Primary School, Gwaen Cae Gurwen

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	3	3	0	13	0	1	0
	Previous	5	0	3	5	0	4	0	1	0

Figure 2.28 Gwaen Cae Gurwen fallout rates

Neath Port Talbot County Borough Council

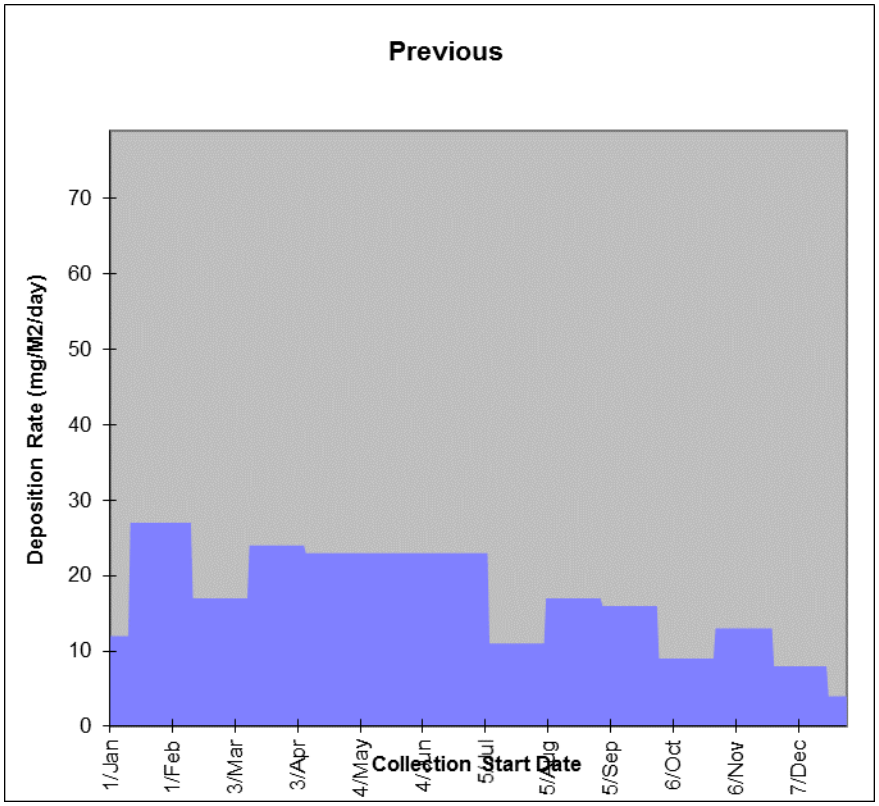
Deposit Gauge Analysis Report

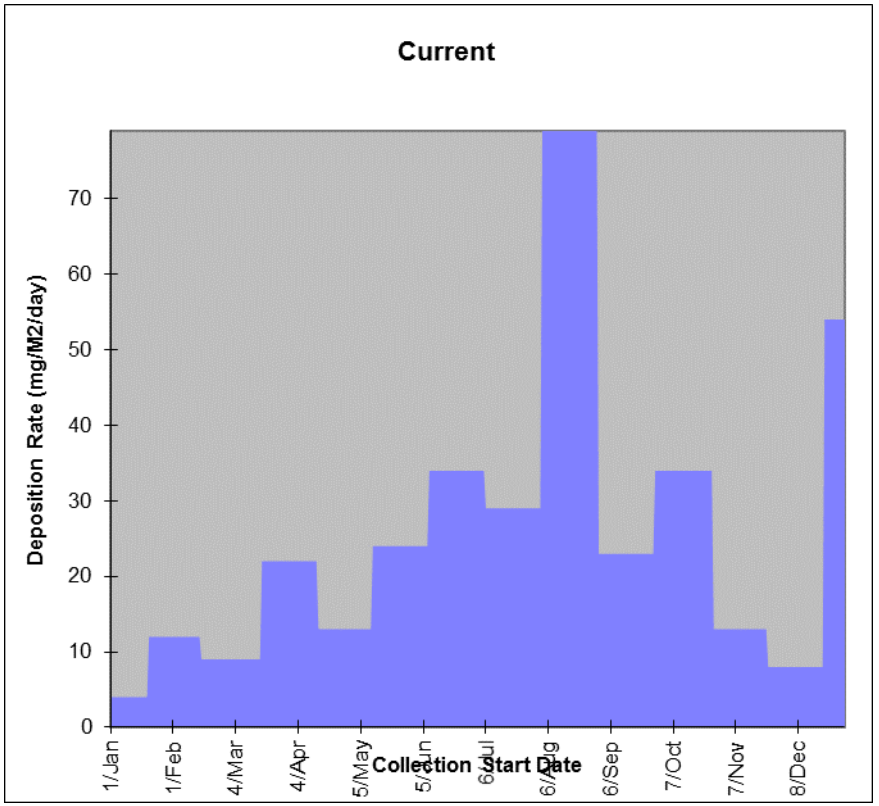
Primary School, Gwaen Cae Gurwen

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	79	13	100.0	0	0
Previous	17	27	13	100.0	0	0
Change	8	Increase 47%				

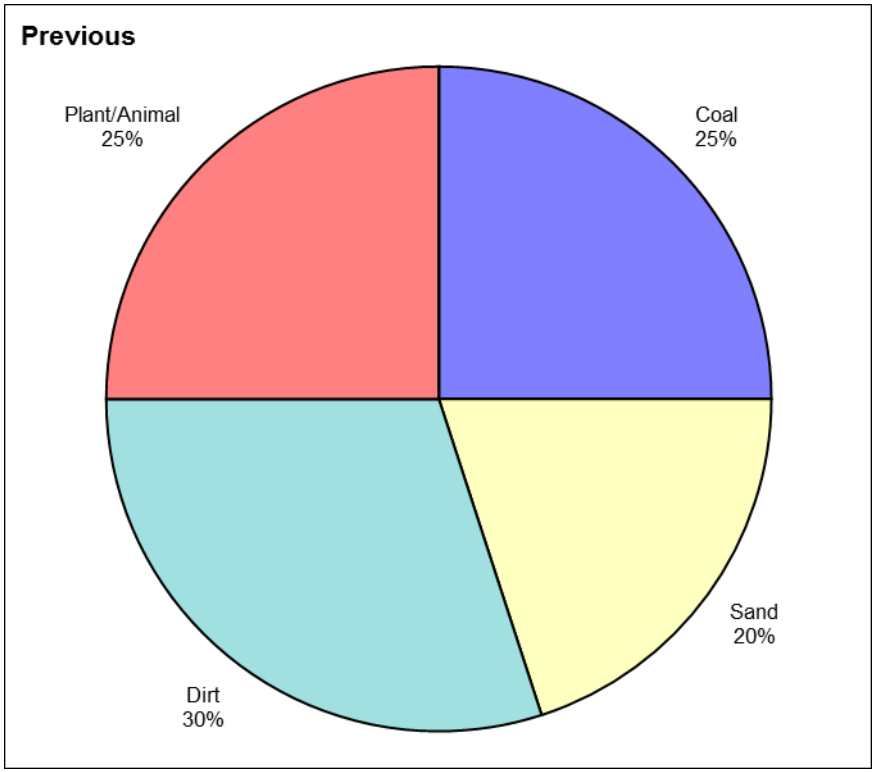
Deposit Gauge Analysis Report

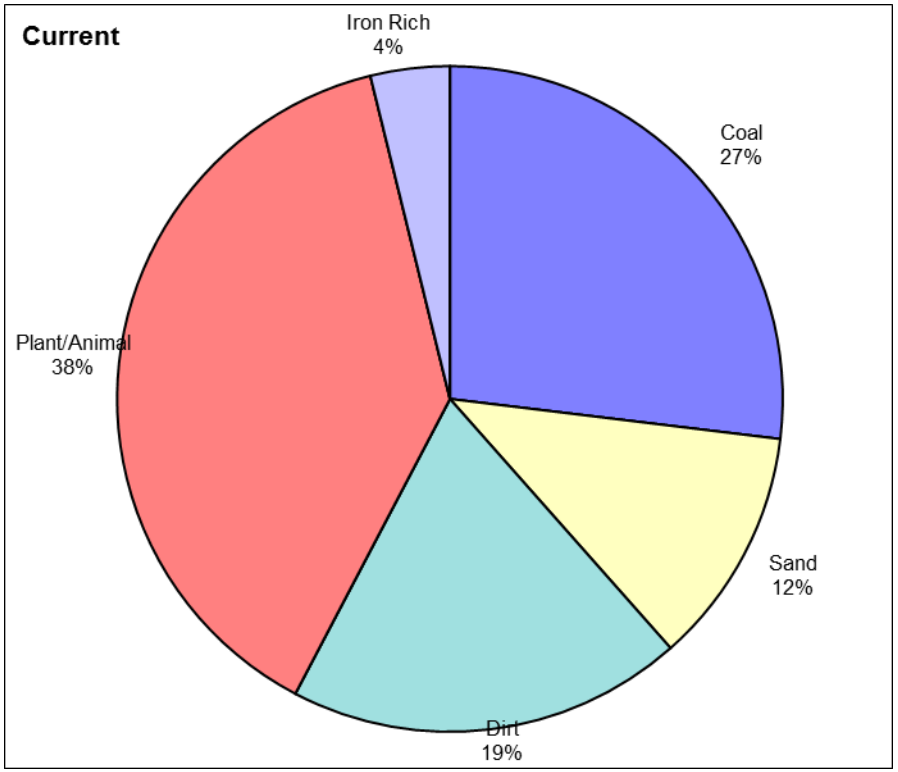
Workingmens Club, Tairgwaith

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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

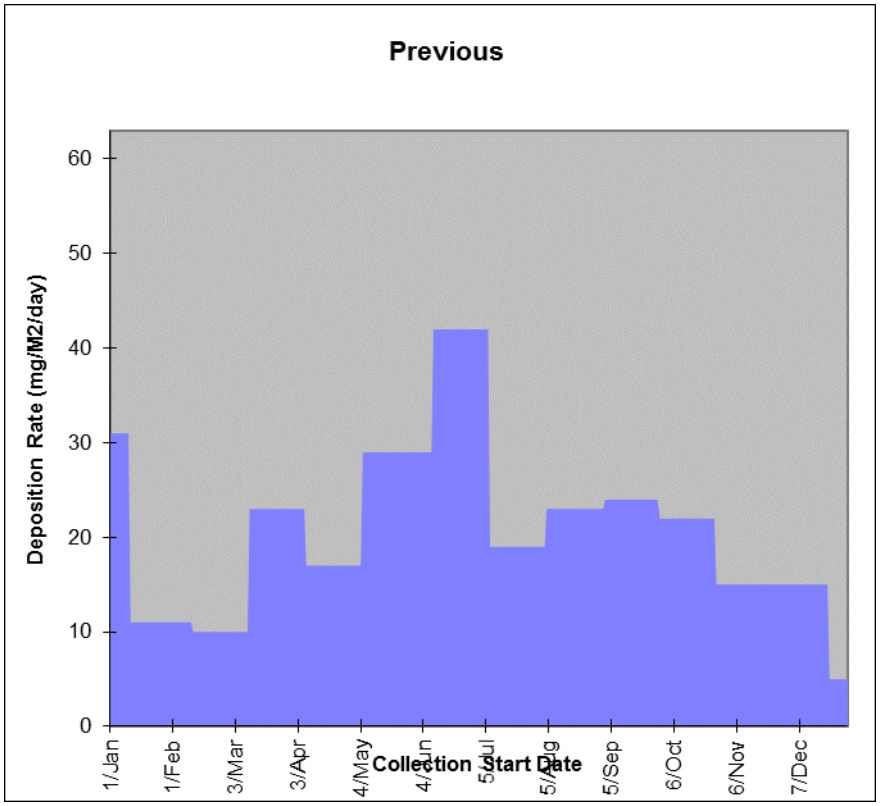
Deposit Gauge Analysis Report

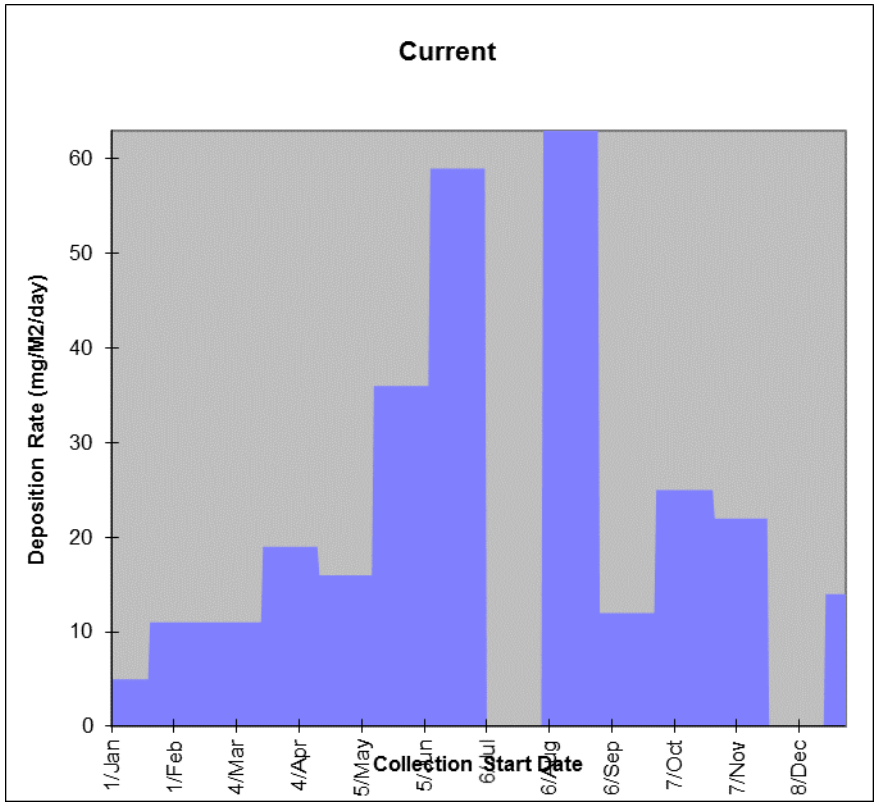
Workingmens Club, Tairgwaith

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	26	63	11	84.6	0	0
Previous	21	42	13	100.0	0	0
Change	5	Increase 24%				

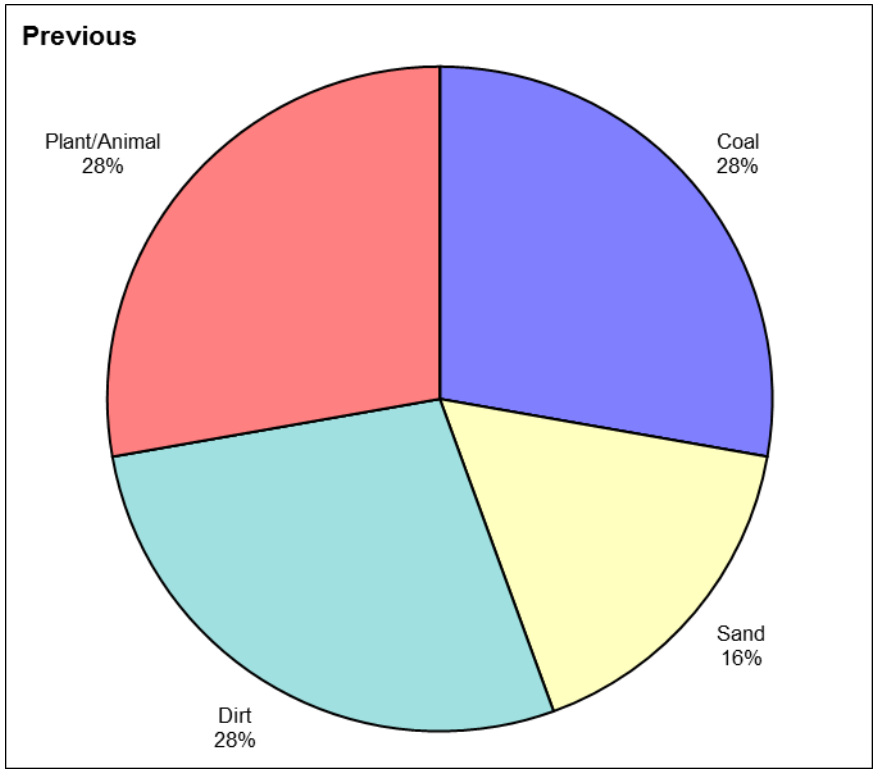
Deposit Gauge Analysis Report

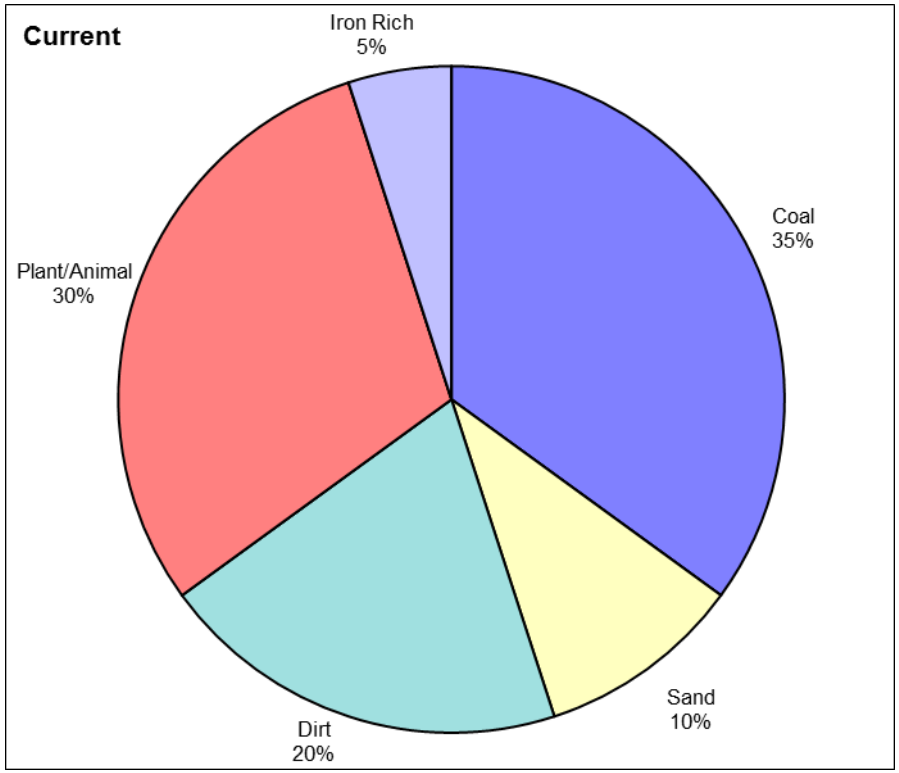
41, Parish Road, Cwmgwrach

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	2	4	0	6	0	1	0
	Previous	5	0	3	5	0	5	0	0	0

Figure 2.32 Cwmgwrach fallout rates

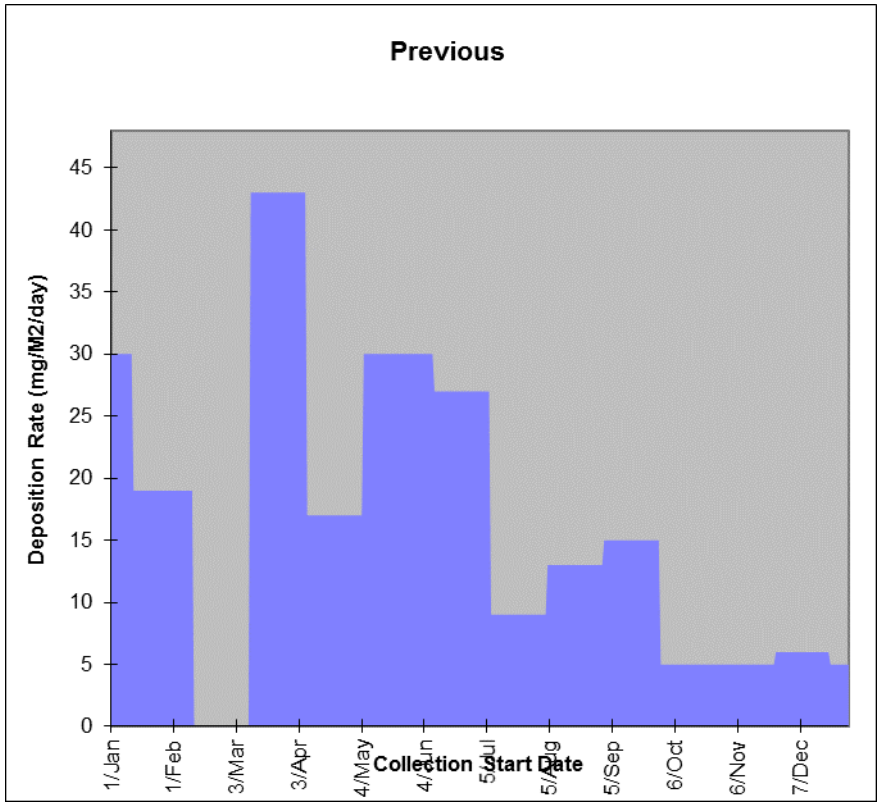
Deposit Gauge Analysis Report

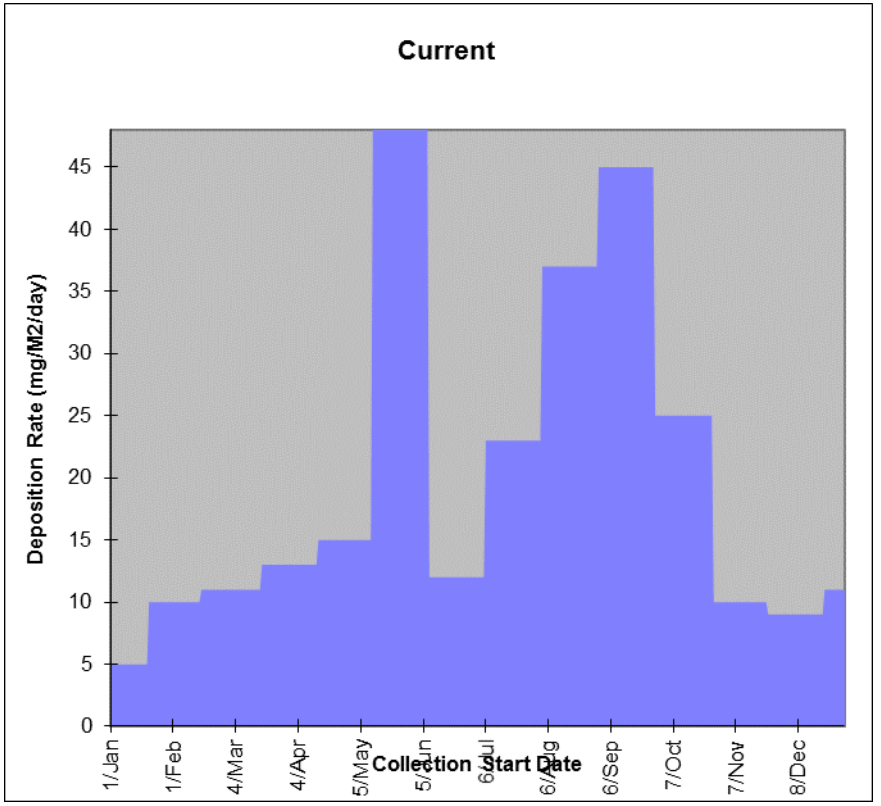
41, Parish Road, Cwmgwrach

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	20	48	13	100.0	0	0
Previous	18	43	12	92.1	0	0
Change	2	Increase 11%				

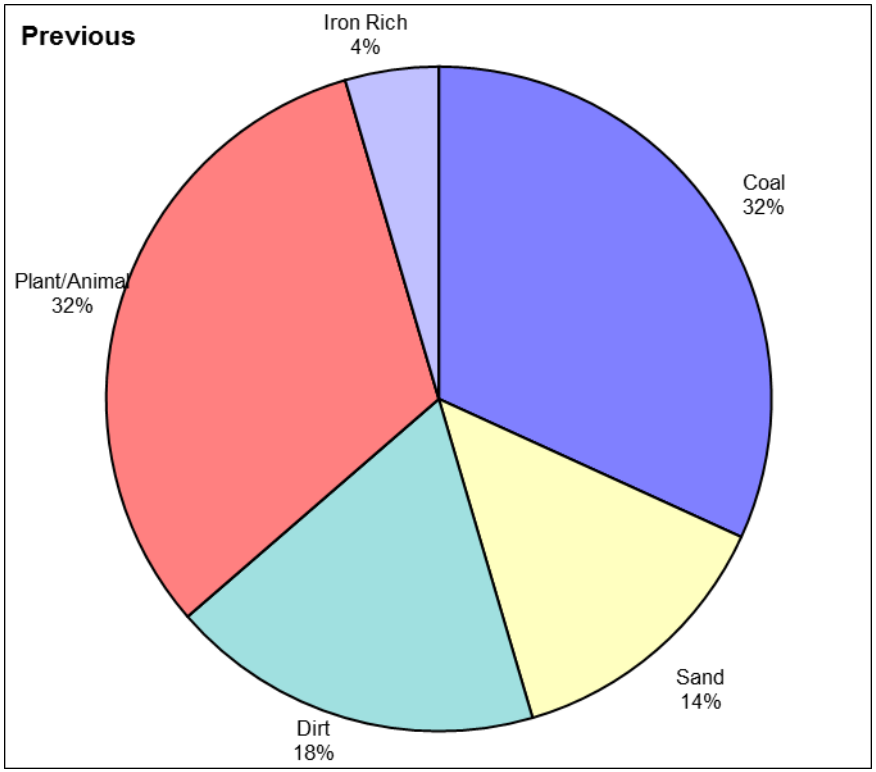
Deposit Gauge Analysis Report

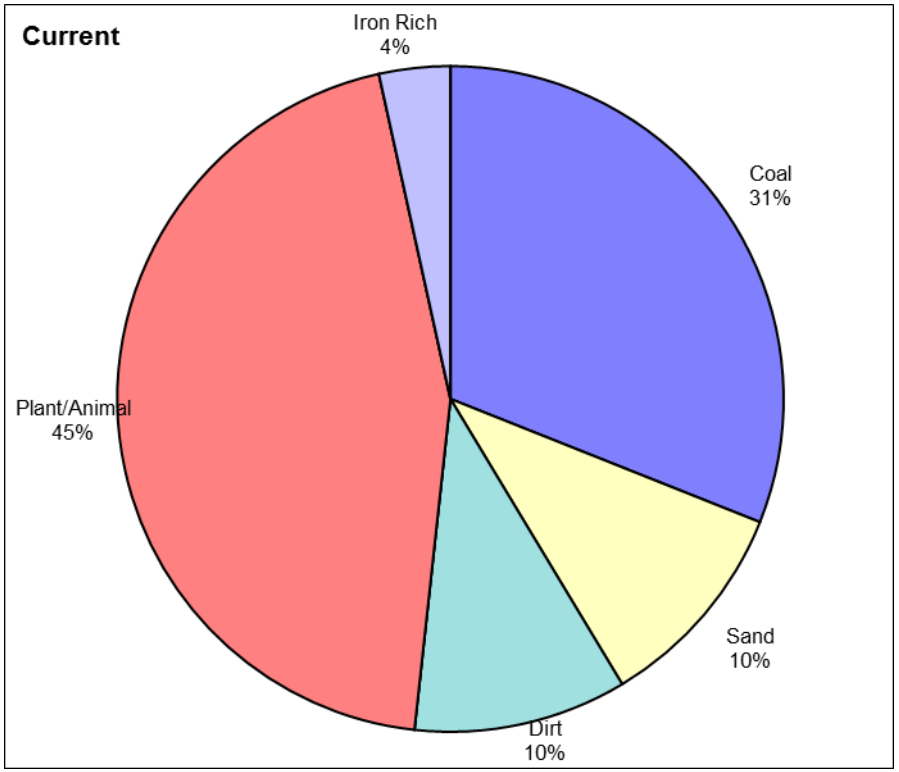
2, Llygad Yr Haul, Glynneath

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	9	0	3	3	0	13	0	1	0
	Previous	7	0	3	4	0	7	0	1	0

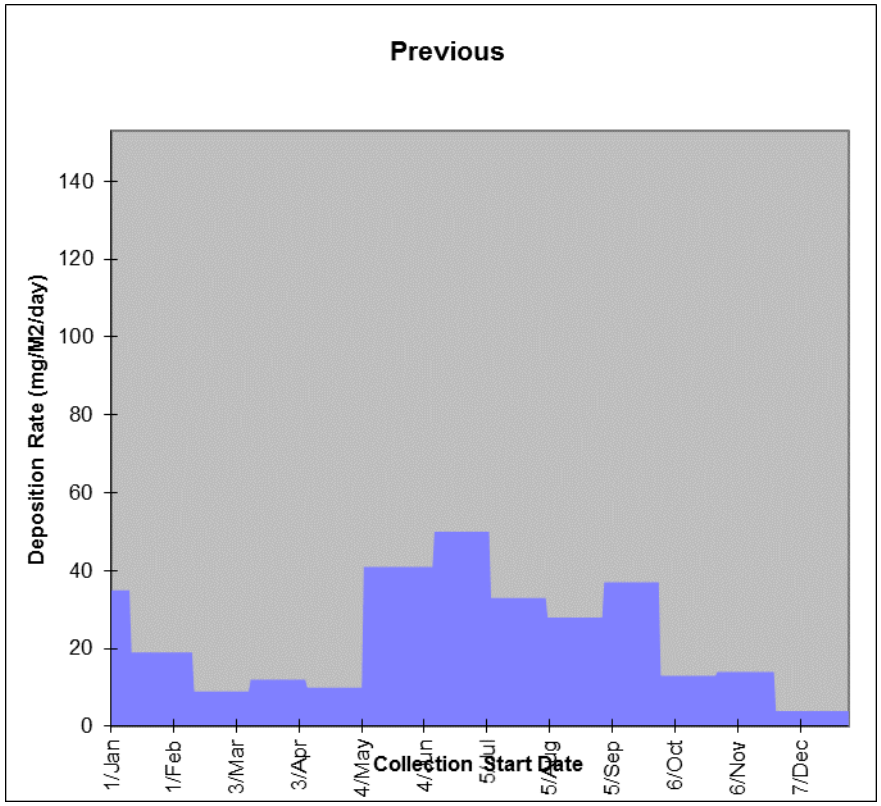
Deposit Gauge Analysis Report

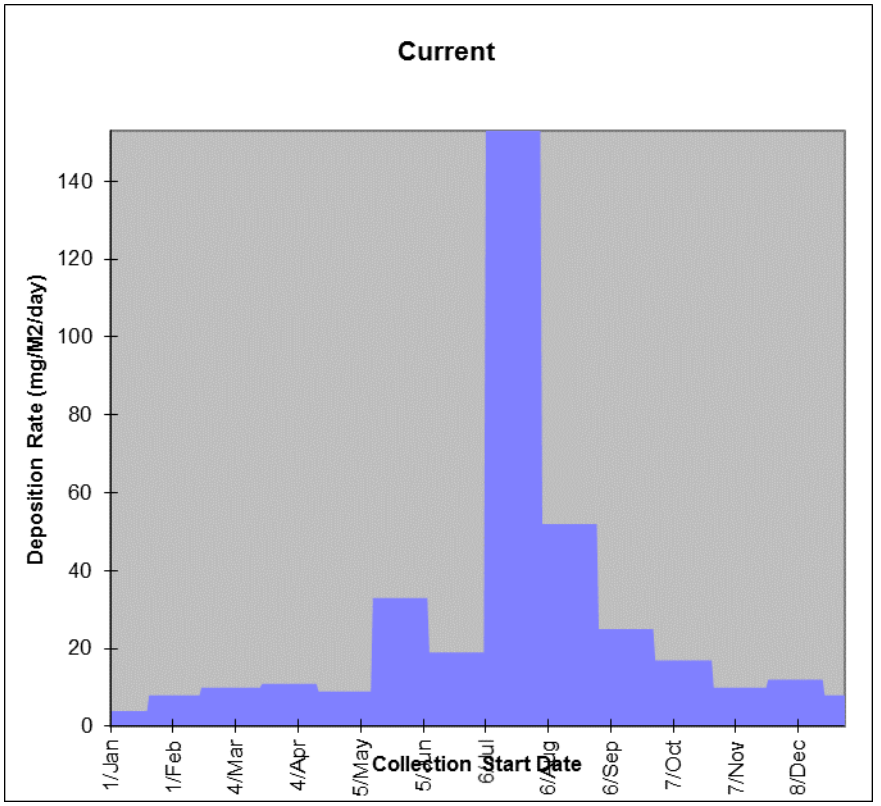
2, Llygad Yr Haul, Glynneath

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	153	13	100.0	0	0
Previous	23	50	13	100.0	0	0
Change	5	Increase 22%				

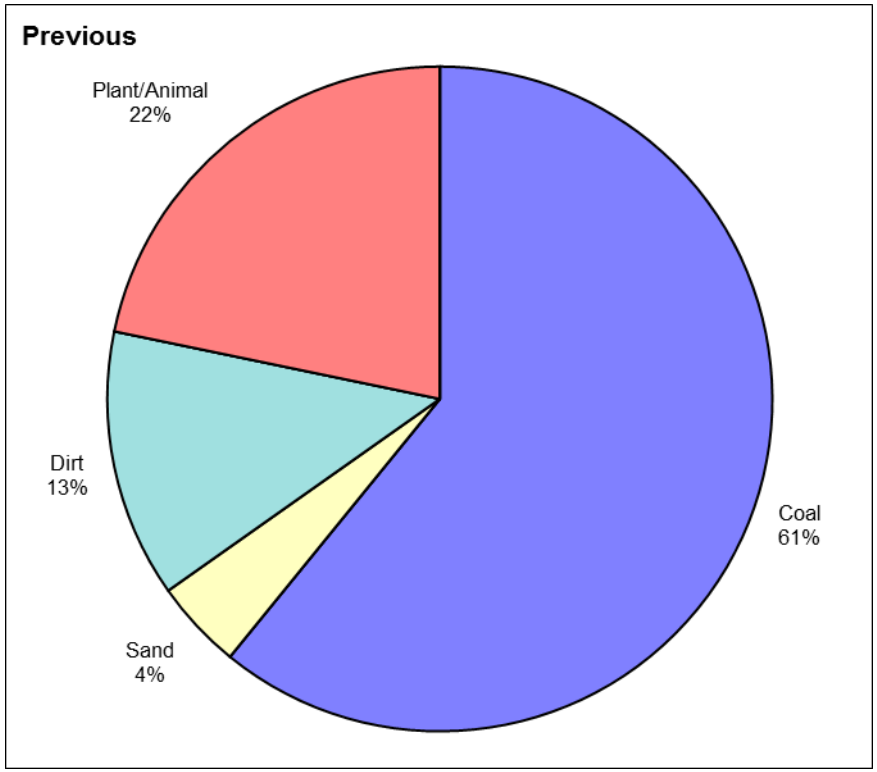
Deposit Gauge Analysis Report

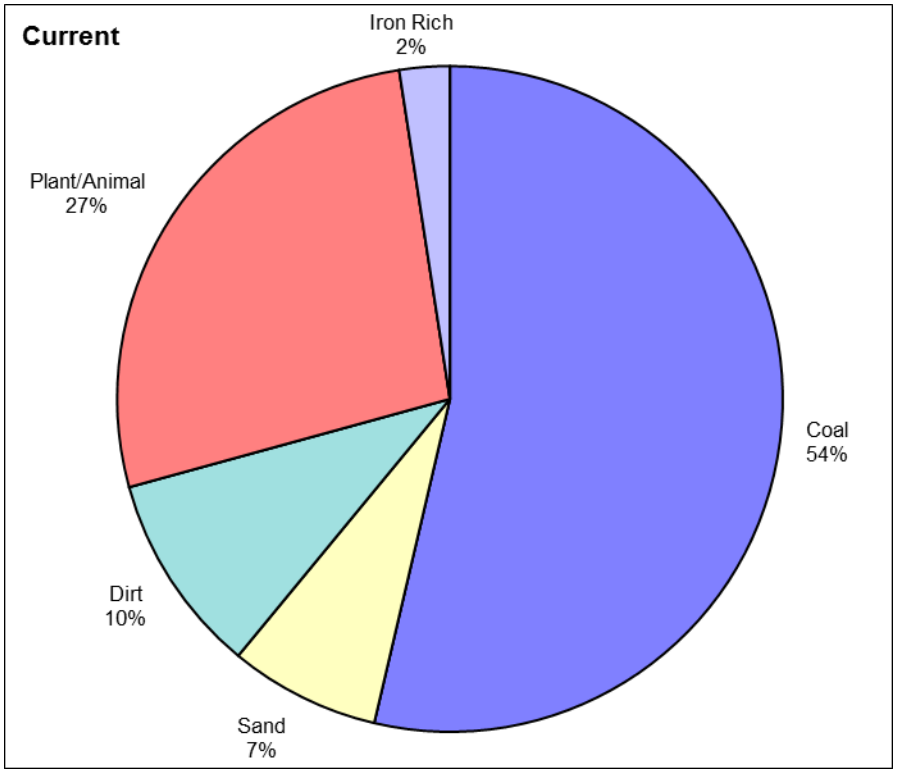
11, Wembley Avenue, Onllwyn

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	22	0	3	4	0	11	0	1	0
	Previous	14	0	1	3	0	5	0	0	0

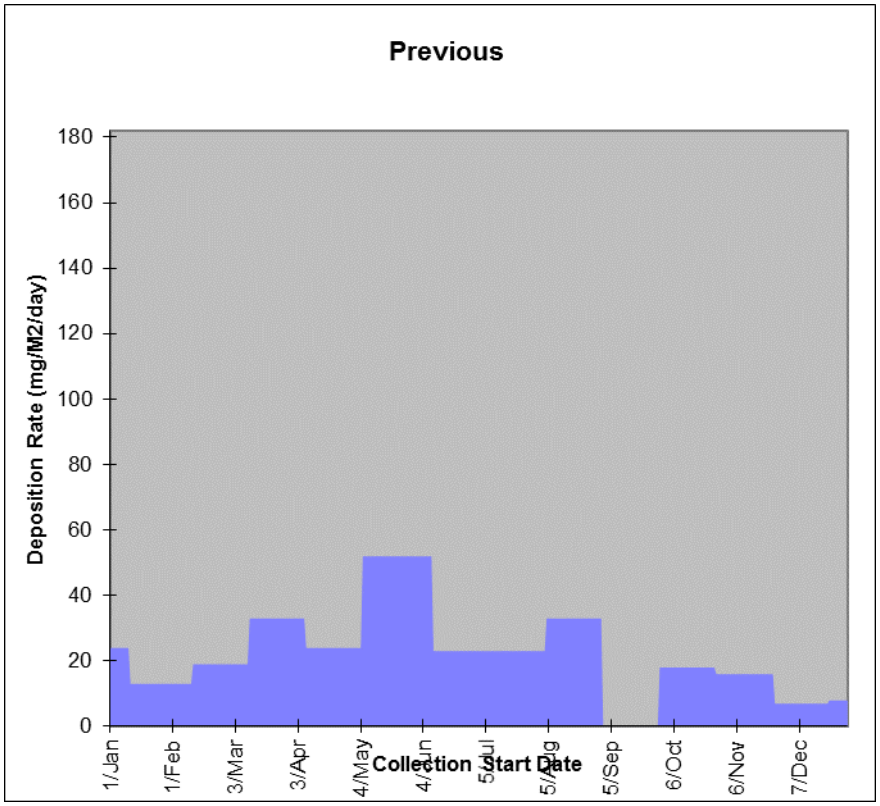
Deposit Gauge Analysis Report

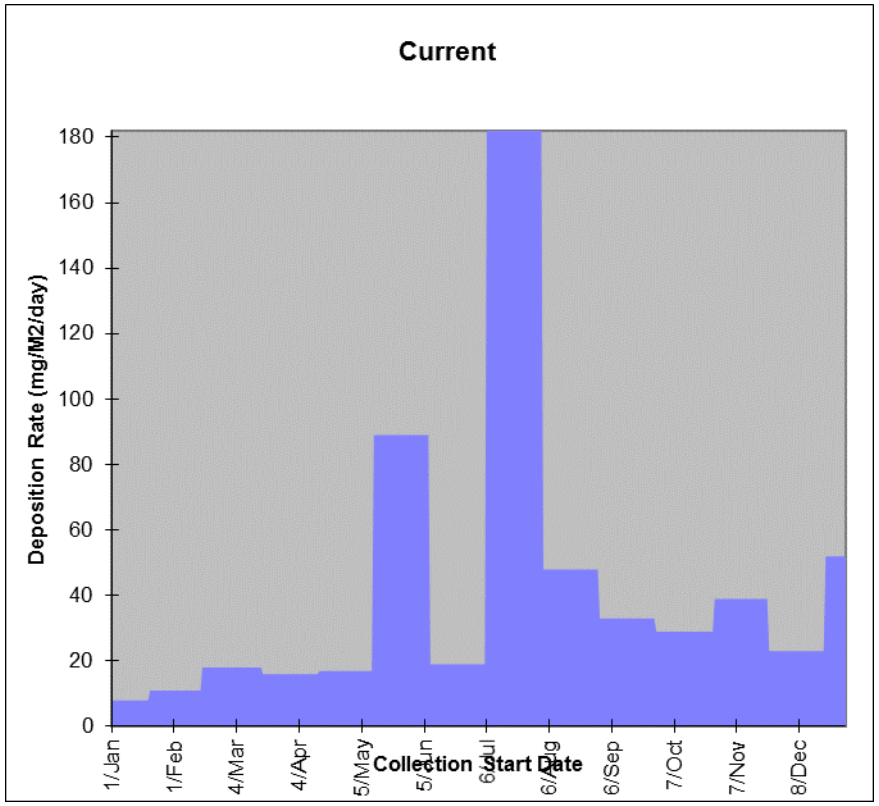
11, Wembley Avenue, Onllwyn

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	42	182	13	100.0	28	0
Previous	24	52	12	92.1	0	0
Change	18	Increase 75%				

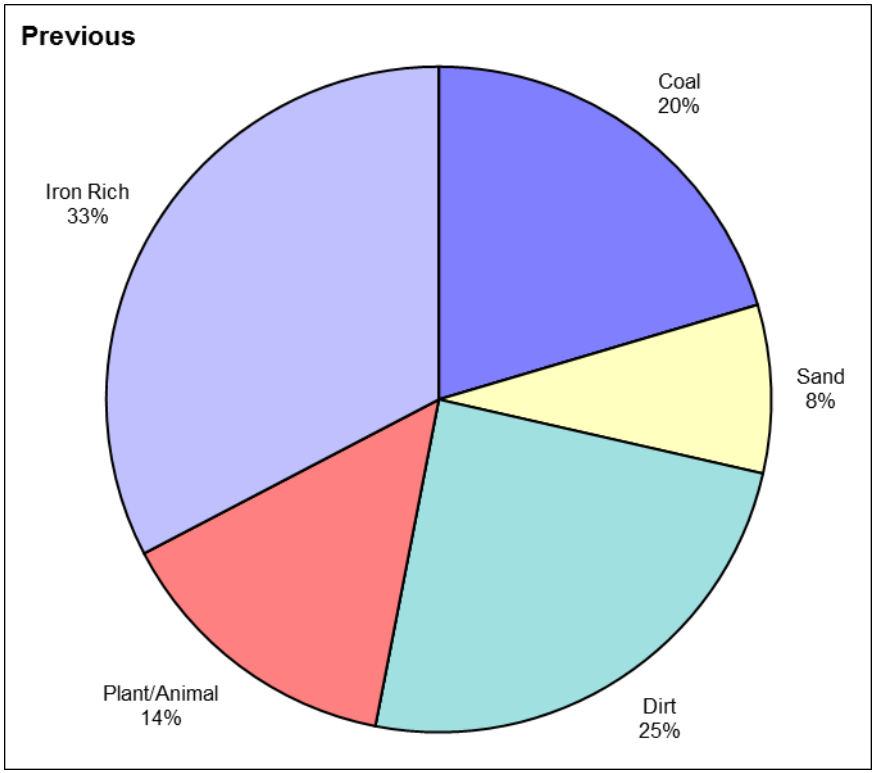
Deposit Gauge Analysis Report

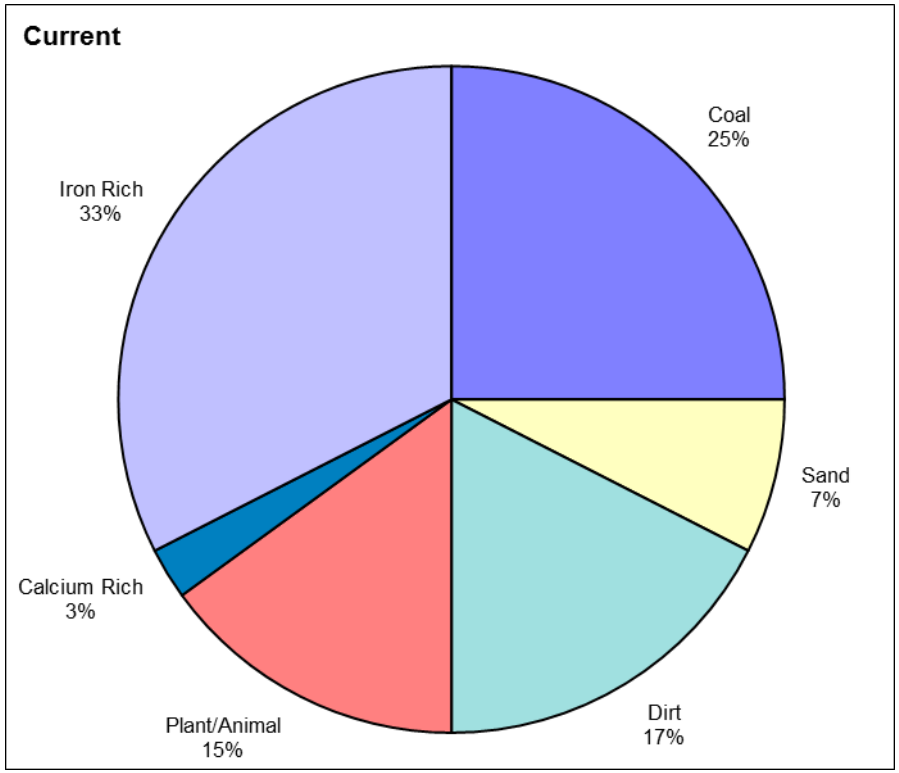
Little Warren, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	3	7	0	6	1	13	0
	Previous	10	0	4	12	0	7	0	16	0

Figure 2.38 Little Warren fallout rates

Neath Port Talbot County Borough Council

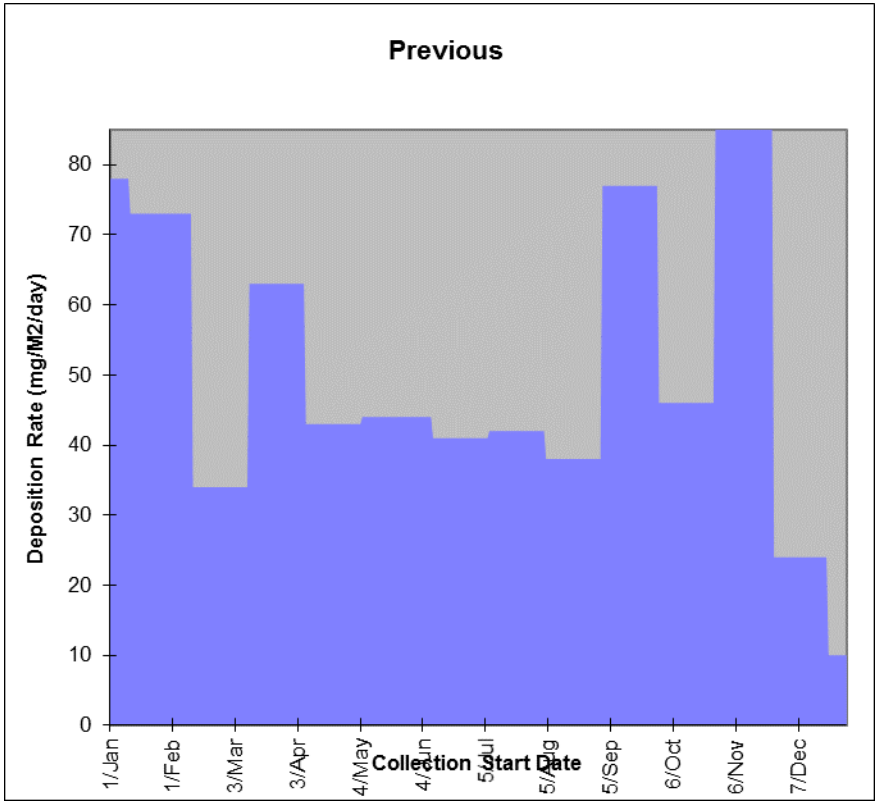
Deposit Gauge Analysis Report

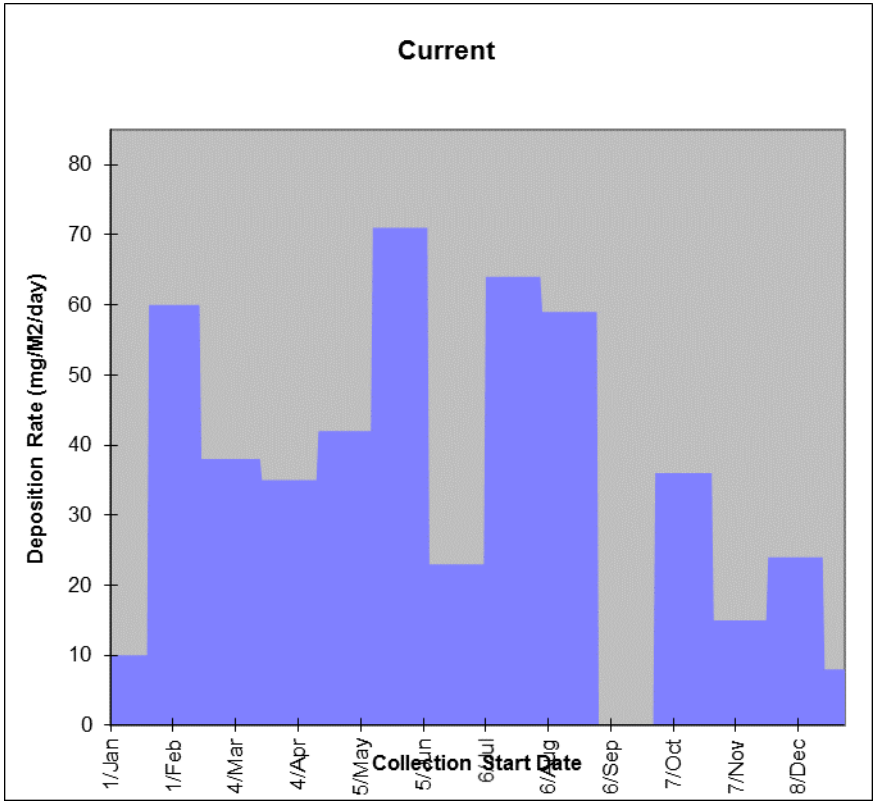
Little Warren, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	39	71	12	92.3	0	0
Previous	51	85	13	100.0	0	0
Change	-12	Decrease -24%				

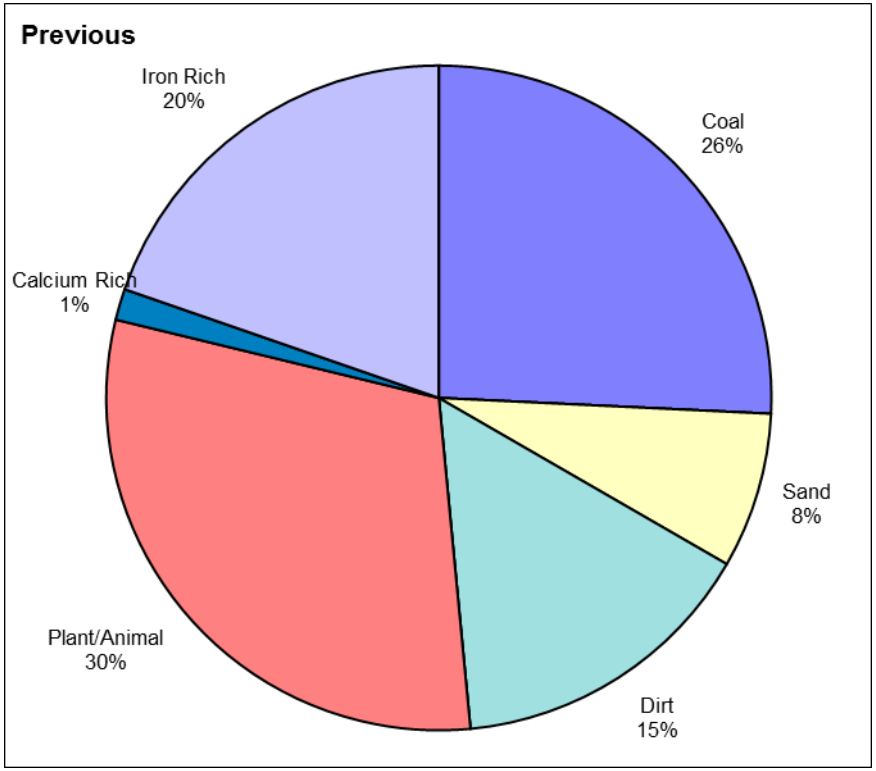
Deposit Gauge Analysis Report

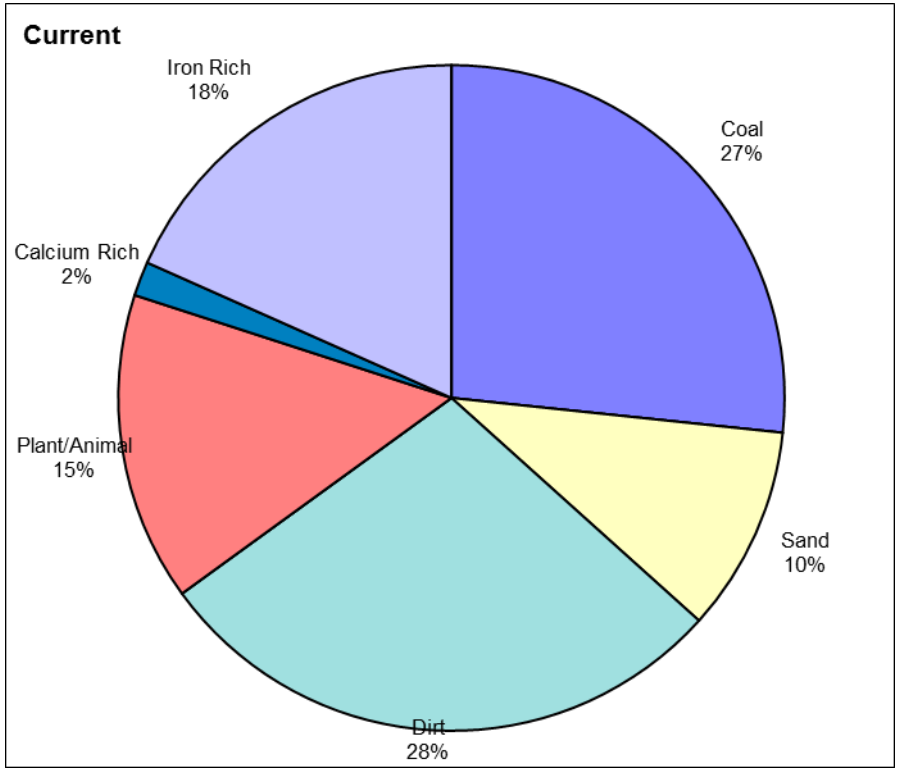
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	16	0	6	17	0	9	1	11	0
	Previous	17	0	5	10	0	20	1	13	0

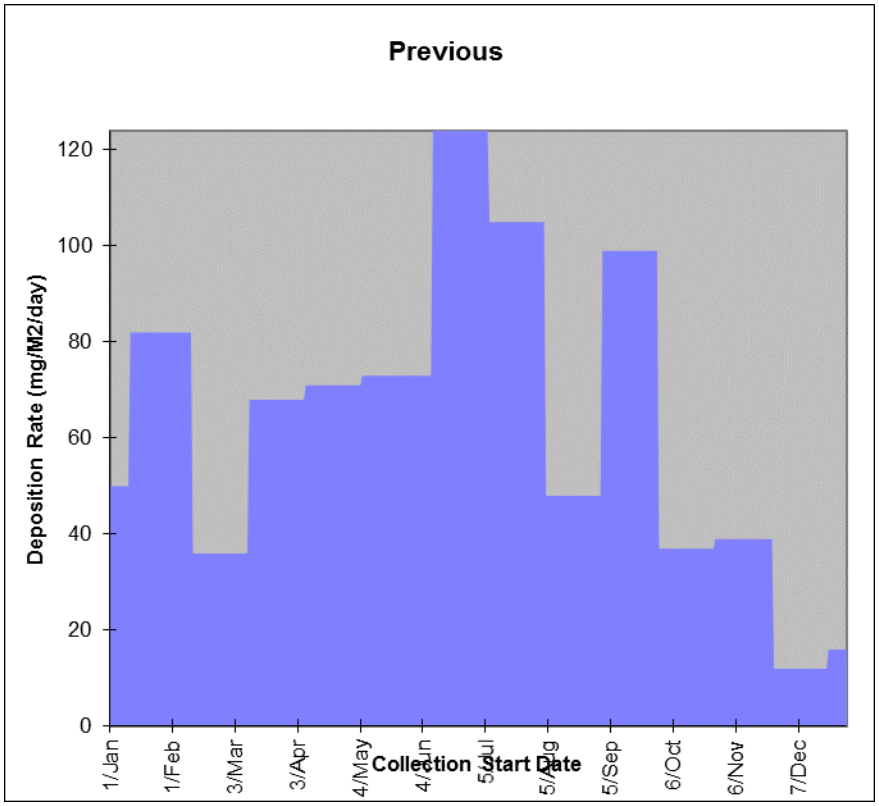
Deposit Gauge Analysis Report

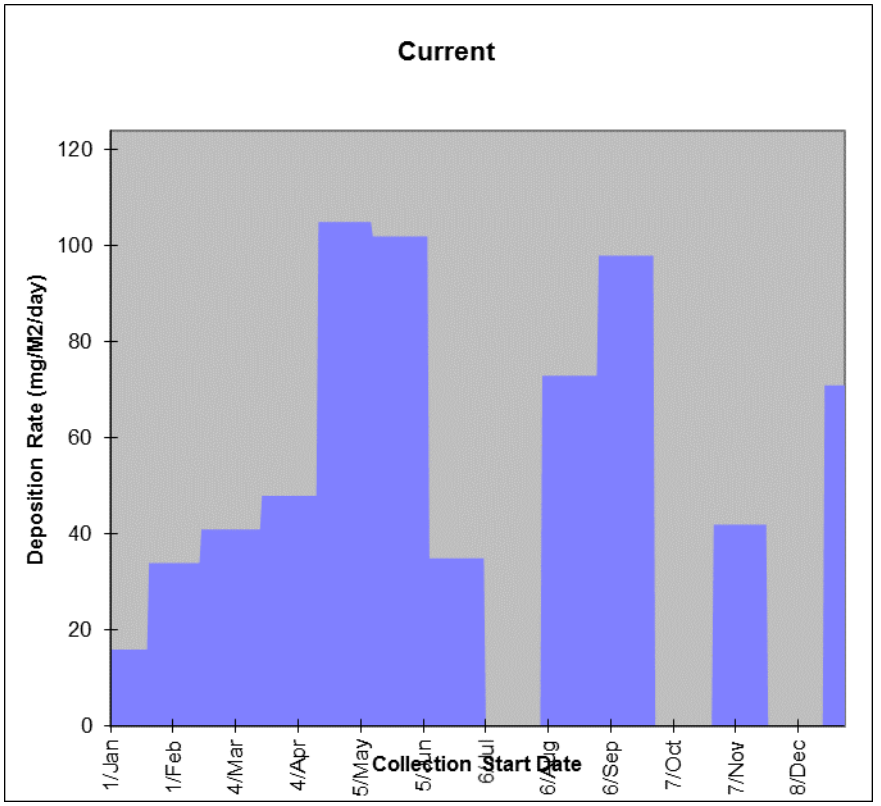
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	61	105	10	76.6	0	0
Previous	65	124	13	100.0	0	0
Change	-4	Decrease -4%				

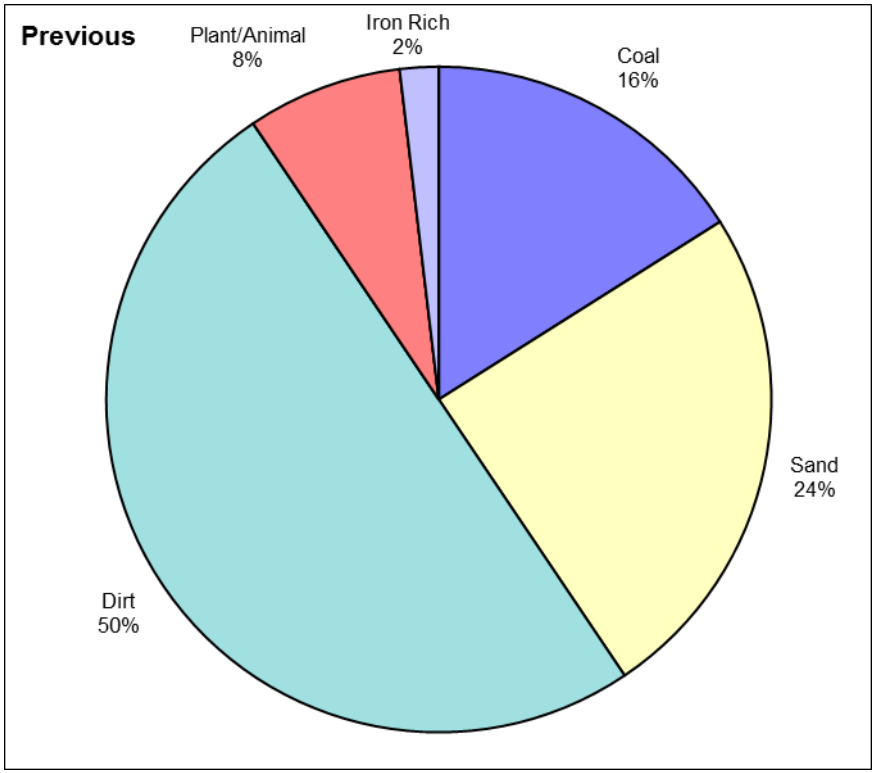
Deposit Gauge Analysis Report

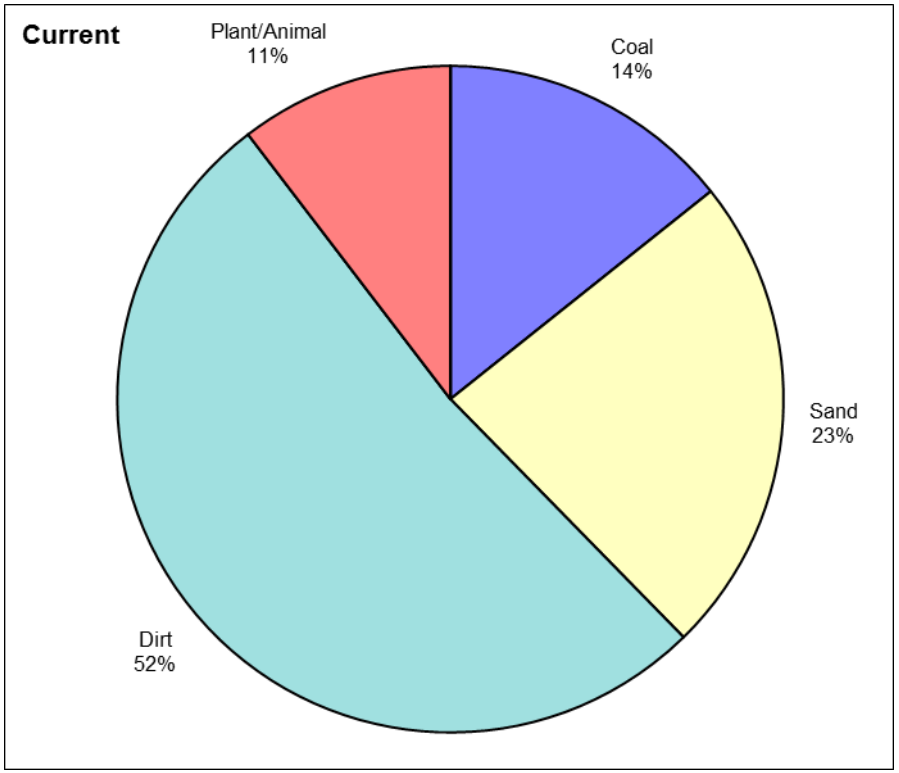
Cwmllynfell

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	17	0	26	53	0	8	0	2	0
	Previous	9	0	27	37	0	9	0	1	0

Figure 2.42 Cwmllynfell fallout rates

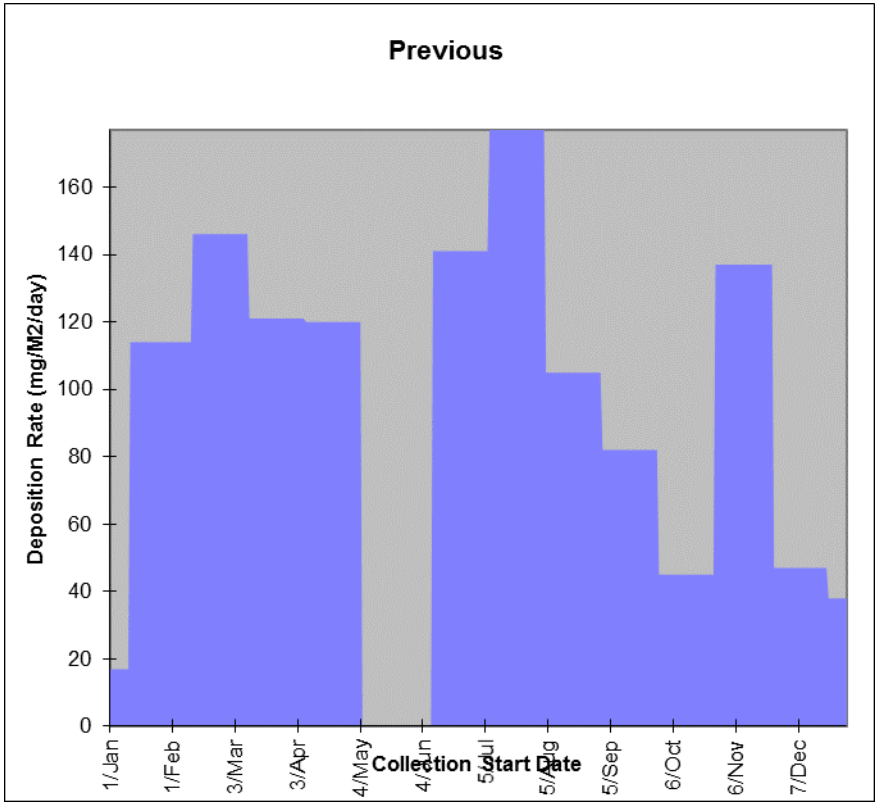
Deposit Gauge Analysis Report

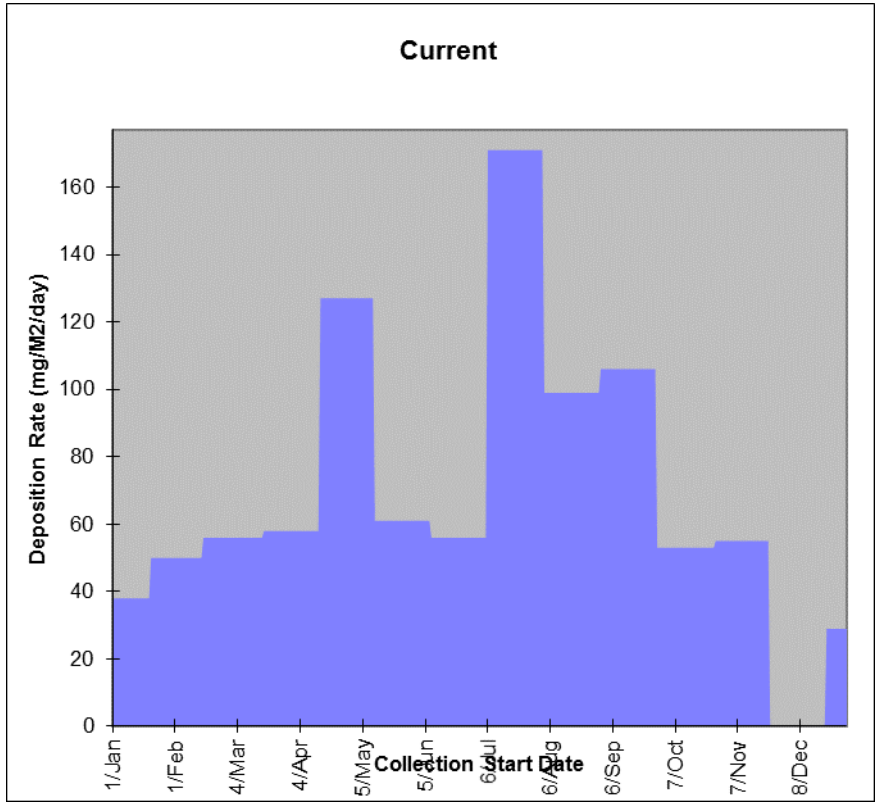
Cwmllynfell

Comparison of Fallout Rate with Time

Current Period = 01-Jan-17 to 31-Dec-17

Previous Period = 01-Jan-16 to 31-Dec-16





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	77	171	12	92.3	0	0
Previous	107	177	12	90.2	0	0
Change	-30	Decrease -28%				

Figure 2.43 Comparison of average fallout rates, 2017

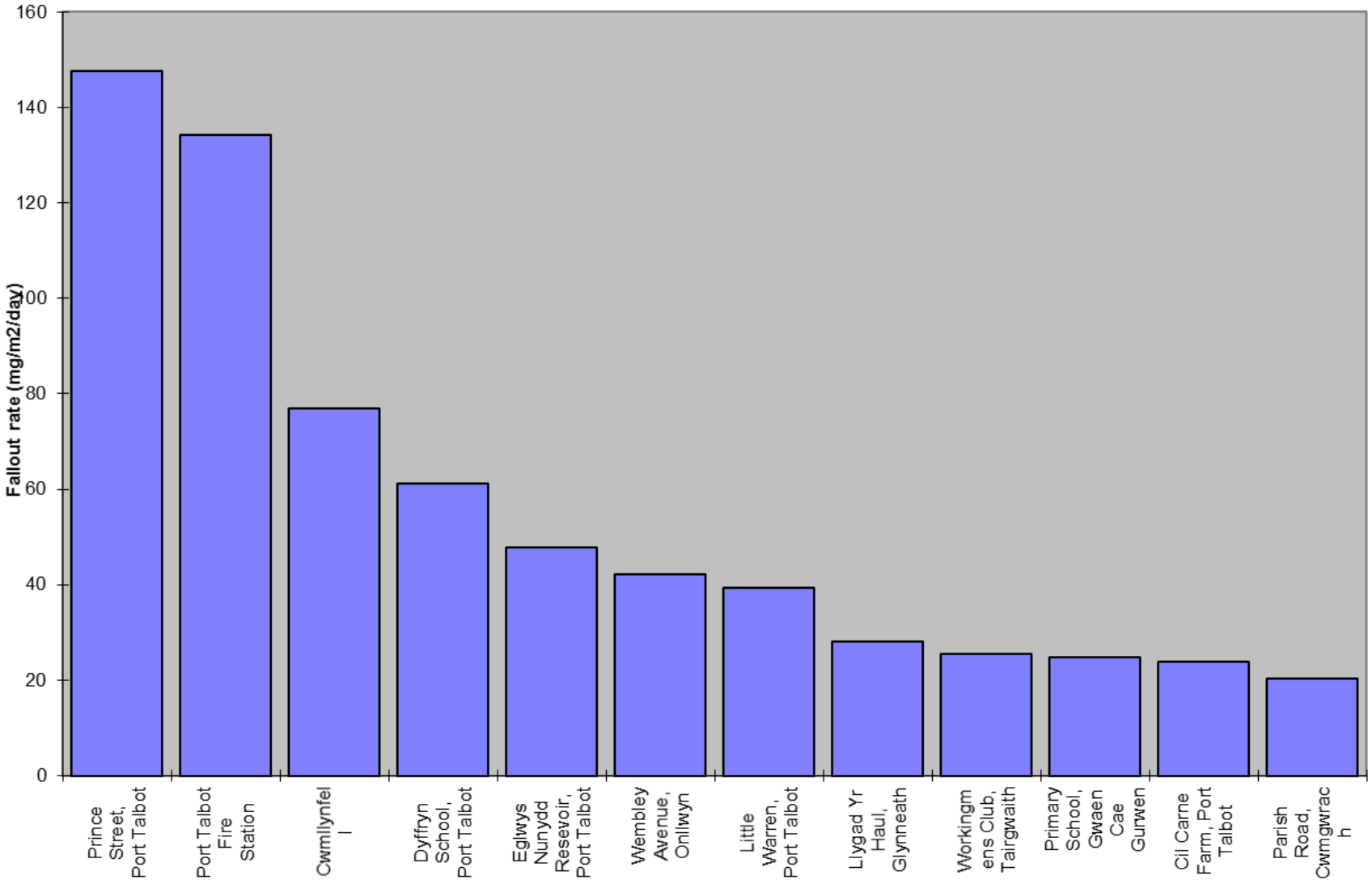


Table 2.17 - Sites ranked by average fallout level (mg/m^2/day) 2017

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	148	304	57	84
Port Talbot Fire Station, Port Talbot	134	292	57	84
Cwmllynfell	77	171	0	0
Dyffryn School, Bertha Road, Port Talbot	61	105	0	0
Eglwys Nunydd Resevoir, Port Talbot	48	89	0	0
11, Wembley Avenue, Onllwyn	42	182	28	0
Little Warren, Port Talbot	39	71	0	0
2, Llygad Yr Haul, Glynneath	28	153	0	0
Workingmens Club, Tairgwaith	26	63	0	0
Primary School, Gwaen Cae Gurwen	25	79	0	0
Cil Carne Farm, Port Talbot	24	53	0	0
41, Parish Road, Cwmgwrach	20	48	0	0

Error! Not a valid link.

Figure 2.44 Long term deposition rates

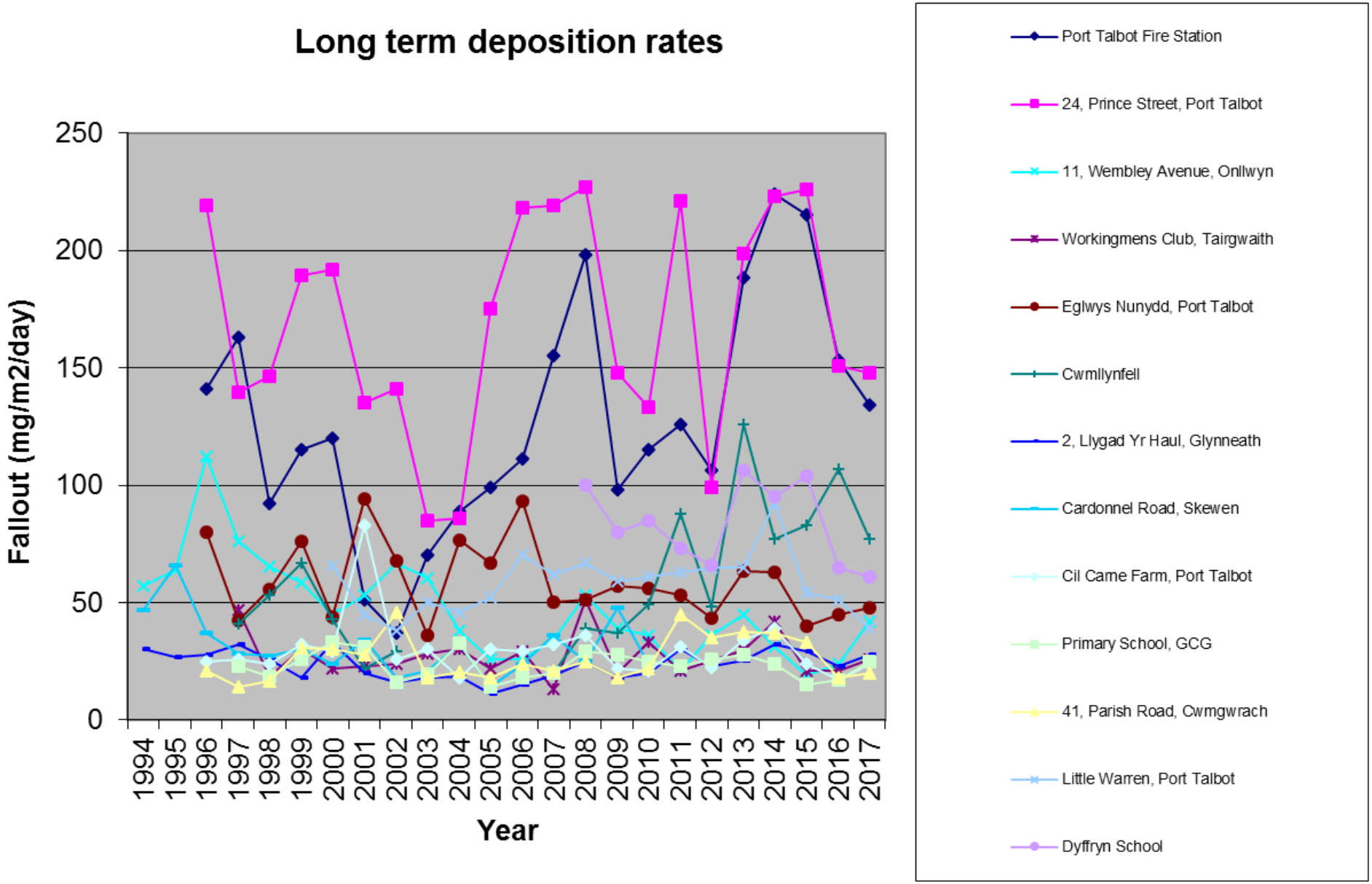


Table 2.18 - Long term deposition rates

Site Name	Fallout rate (mg/m2/day)																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Port Talbot Fire Station	51	37	70	89	99	111	155	198	98	115	126	106	188	224	215	153	134
24, Prince Street, Port Talbot	135	141	85	86	175	218	219	227	148	133	221	99	199	223	226	151	148
11, Wembley Avenue, Onllwyn	53	67	60	38	26	26	34	53	39	36	21	36	45	31	19	24	42
Workingmens Club, Tairgwaith	23	24	28	30	22	29	13	51	20	33	21	25	30	42	21	21	26
Eglwys Nunydd, Port Talbot	94	68	36	77	67	93	50	51	57	56	53	44	64	63	40	45	48
Cwmllynfell	22	29					20	39	37	49	88	48	126	77	83	107	77
2, Llygad Yr Haul, Glynneath	20	16	18	19	11	15	19	25	18	20	30	23	25	32	29	23	28
Cardonnel Road, Skewen	34	18	21	32	14	24	36	25	48	24		24					
Cil Carne Farm, Port Talbot	83	26	30	18	30	29	32	36	22	21	31	22	34	39	24	17	24
Primary School, GCG	31	16	19	33	14	18	20	29	28	25	23	26	28	24	15	17	25
41, Parish Road, Cwmgwrach	28	46	18	20	18	24	21	25	18	22	45	35	37	37	33	18	20
Little Warren, Port Talbot	45	38	50	46	52	70	62	67	59	61	63	65	65	92	54	51	39
Bryn Hyfred						40	31	32	27	27							
Dyffryn School								100	80	85	73	66	106	95	104	65	61

2.3.2 Summary of Compliance with AQS Objectives

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

Although concentrations within the AQMA did not exceed the short-term air quality objective for PM_{10} at Port Talbot Fire Station during 2017, the AQMA should remain.

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

3 New Local Developments

3.1 Road Traffic Sources

No new sources have been identified.

3.2 Other Transport Sources

No new sources have been identified.

3.3 Industrial Sources

No new sources have been identified.

3.4 Commercial and Domestic Sources

No new sources have been identified.

3.5 New Developments with Fugitive or Uncontrolled Sources

No new sources have been identified.

Neath Port Talbot County Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area, which have not been considered in previous reports.

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

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

4 Local / Regional Air Quality Strategy

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

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

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

It is proposed to next review the strategy in 2019.

5 Planning Applications

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

Application number P2015/0641 relates to the demolition of Port Talbot Police Station and construction of 30 flats. The site is immediately adjacent to the AQMA. The air quality impact was assessed in accordance with the IAQM guidance. Suitable mitigation measures are to be adopted.

Application number P2016/0469 dealt with the application to replace diesel engines for gas engines or batteries at a short term operating reserve at Baglan Energy Park. Either option represented a significant improvement in emissions to air.

6 Air Quality Planning Policies

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

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

Subsequently in October 2016, the Council adopted a number of Supplementary Planning Guidance (SPG) documents to support the LDP, which set out more detailed topic or site specific guidance on the way in which the policies of the LDP will be applied in particular circumstances or areas. Supplementing the three LDP policies referred to above, the 'Pollution' SPG provides detailed information about pollution issues in Neath Port Talbot and sets out the relevant matters that will need to be taken into consideration when developments are being planned. While only policies in the LDP have special status in the determination of planning applications, the SPG will be taken into account as a material consideration in the decision making process.

LDP (2011-2026) Extract

Environmental Protection

5.3.38 Strategic Policy SP16 Environmental Protection

Policy SP16 Environmental Protection

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

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

LDP Objectives: OB 2, OB 16 and OB 17

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

levels. The Plan strategy is to protect and improve the environment as far as possible, and Policy SP16 sets out the approach that will be taken.

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

5.3.41 Policy EN8 Pollution and Land Stability

Policy EN8 Pollution and Land Stability

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

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

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

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

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

5.3.44 Development proposals that could potentially result in or contribute to breaches of any air quality objective will be required to show (through modelling exercises or other appropriate technical information, including taking into account cumulative impacts) that this will not occur. While the provisions would apply throughout the County Borough, developments in the vicinity of the AQMA that would result in additional direct emissions to the atmosphere or could have indirect effects such as through generating significant additional traffic are an example of such a

proposal. If this requirement cannot be met, either with or without mitigation measures, the proposal will not be acceptable under the terms of the policy.

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

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

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

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

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

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

5.3.51 Policy EN9 Developments in the Central Port Talbot Area

Policy EN9 Developments in the Central Port Talbot Area

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

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

7 Local Transport Plans and Strategies

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

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

8 Implementation of Action Plans

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

Progress made with the action plan measures during 2017 is shown in the following table.

Table 9.1 - Action Plan Progress

No.	Measure	Progress in Last 12 Months
A1	Multi agency interaction	4 X PM_{10} Data team meetings during 2016. 0 X PM_{10} Regulator's meeting. 1 X PM_{10} Steering Group meeting. Monitoring results were discussed as were plans for further work including studies by King's College and Birmingham University. All pollution and weather measurements continue and information is shared with partners on request. Our industrial alerts system is used by operators on the steelworks site to try to prevent exceedance days from happening.
A2	Dust reduction programme at Tata site	**General** . Ongoing review/rationalisation of Tata's on-site ambient PM10 monitor network – new multi-pollutant monitor identified . Speed feedback signs installed at key roads across site . Annual 'Drive to Minimise Dust' campaign – focusing on fugitive dust from vehicle movements and un-sheeted loads **Coke ovens** . Major ongoing works to refurbish and renew coke oven doors, charge holes, ascension pipes, spigots and caps – improvements in performance now being seen . Rate of renewal is limited by difficult working environment (live coke ovens) and need to maintain thermal balance and integrity of batteries . Coal charge car extension nozzles changed . Oven end flue repair programme to improve coal carbonisation rates and reduce the risk of black pushes **Raw materials** . New remote camera system installed with enhanced video feed to show dust (stockpile) lift-off and dusty activities to the stockyard supervisor

No.	Measure	Progress in Last 12 Months
		Sinter Plant . Major repair and refurbishment of the sinter plant wind mains - complete . Major repair and refurbishment of the sinter plant ducting - complete . Major repair and refurbishment of the sinter plant Electrostatic Precipitators (ESPs) - nearing completion . Optimisation of ESP electrical fields to improve dust capture performance - ongoing . New foam application point added to the sinter conveyor dust (foam) suppression system . Replacement of foam system metal pipework with plastic components to reduce biological fouling - ongoing . Installation of biocide dosing system to reduce biological fouling - complete . New telemetry allowing foam suppression system to connect to steelworks 'PI' control system . Automated (telemetry) alerts in response to foam system faults **Ironmaking** . Scrutiny and review of blast furnace bleeder valve releases in 2017 . Adjustments to blending and charging processes to mitigate the impact of variable raw materials . Review of ferrous stock house screens and dust suppression systems to improve performance . Review of casting controls and operating procedures **Steel & Slab** . BOS Plant Fume Extraction Plant (FEP) Project Phase 1 – complete . Upgrade and optimisation of the BOS Plant Secondary Fume Extraction Plant (FEP) - complete . Upgrade and optimisation of the BOS Plant Hot Metal Pouring Bay FEP -

No.	Measure	Progress in Last 12 Months
		complete . Investment in a new travelling hood at the Hot Metal Pouring Bay – installed . Improved BOS Plant control systems allowing more reliable performance and greater FEP flexibility . Optimising converter charging practices e.g. coarse sinter instead of lump ore, oxygen lance height analysis **Energy** . Upgrade and harmonisation of Service Boilers 4 & 5 control system allowing more efficient combustion and use of natural gas as a secondary fuel source . Removal of heavy fuel oil (HFO) combustion capability at Service Boilers 4 & 5 which will reduce SO_2 and particulate releases . New power plant (construction) activities to be added to the Port Talbot steelworks AQMP
A3	Planning Policies	LDP issued.
A4	Tree Planting	Further consideration is being given to some tree planting in 2018/2019.
A5	Transport infrastructure (PDR)	Project now complete.
A6	Train haulage emissions	There were no complaints about dusty trains in Port Talbot during 2017.
A7	NPT permitting in vicinity of steel works	NPT continues to regulate Civil & Marine Slag Cement in accordance with the permit and BAT.
A8	Travel Plans	NPT CBC are in the process of implementing their reviewed Travel Plan across their sites, reflecting progress made towards sustainable travel planning. Although plans are still in place to set up a Travel Forum in the Baglan Bay area, NPT CBC liaise with representatives from businesses, organisations and transport operators within the area to ensure sustainable, accessible and active travel opportunities are in place to meet the requirements of the area. This is being monitored to reflect ongoing growth and development.
A9	School Travel Plans	A total of 57 schools in the County Borough have travel plans.

No.	Measure	Progress in Last 12 Months
A10	Domestic Bonfires	Engagement with the public on air quality issues continues.
A11	Industrial Fires	Natural Resources Wales keeps a list of permitted sites with combustible wastes, which are risk categorised. NRW also investigates illegal sites. NPTCBC has taken proactive measures together with other agencies to prevent tyre fires.
A12	Hill Fires	A fire safety education program is in place with a named officer for the Neath Port Talbot area of Mid and West Wales Fire Service.
A13	Increased street sweeping	The service is still available and the sweeper was deployed on the Peripheral Distributor Road (PDR) once during 2017.
A14	Public and industrial air alerts	The industrial air alerts system is used by 147 subscribers. The trial of the public system is complete and there are currently no plans to continue with the service.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

The long-term Air Quality Objectives for nitrogen dioxide were not breached at any locations in Neath Port Talbot.

Continuous measurements of NO_2 at Victoria Gardens increased slightly but the ongoing trend is still downwards. Measurements at Port Talbot Fire station were lower than the previous year and continue to easily comply with air quality objectives.

Neither the long-term nor the short-term Air Quality Objectives for PM_{10} were breached in Port Talbot. However, the Taibach/Margam AQMA will continue to remain in force.

There were no exceedances of Air Quality Objectives for sulphur dioxide (SO_2), lead (Pb) or carbon monoxide (CO).

9.2 Conclusions relating to New Local Developments

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

9.3 Other Conclusions

Fine particulates of less than 2.5 microns in size ($PM_{2.5}$) easily complied with the EU Target which is to be complied with by 2015.

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

Whilst the concentration of polyaromatic hydrocarbons at Port Talbot has exceeded the Air Quality Objective of 0.25 ng/m^3, it has never exceeded the EU target value of 1 ng/m^3. Moreover the increasing trend observed in recent years has been reversed in 2017 with a reduction of approximately 30% compared to the previous year.

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

Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe. This is the first occasion that nickel levels at Tawe have complied with the EU Target and is a consequence of effective regulation and operation of the Wall Colmonoy site.

The highest rates of fallout of large particles (nuisance dust) were measured in Port Talbot at Port Talbot Fire Station and Prince Street. Fallout rates at these locations were broadly similar to the previous year.

None of the 26 planning applications considered on grounds of air quality were considered to pose a risk to compliance with air quality objectives.

9.4 Proposed Actions

There are no plans to revoke or modify the Taibach/Margam AQMA, although the short and long-term air quality objectives have not been breached.

The next actions to be taken will be to:

- Submit a LAQM Progress report for the calendar year of 2018.

Appendices

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

NO_2 diffusion tubes are sourced from the Environmental Scientifics Group and are prepared using 50% TEA in acetone. The bias adjustment factor of 0.71 was used for 2016, as derived from a co-location study at two locations.

Factor from Local Co-location Studies (if available)

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

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

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

Figure A1 – Port Talbot Fire Station - Bias adjustment spreadsheet -

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Automatic Method: Period Mean	Automatic Method: Data Capture (% DC)	Data Quality Check: Tubes Precision Check	Data Quality Check: Automatic Monitor Data
1	04/04/2017	02/02/2017	31.2	36.1	37.2	35	3.2	9	7.9	25.5	93	Good	Good
2	02/02/2017	02/03/2017	28.9	27.2	30.7	29	1.8	6.0	4.3	19.2	100	Good	Good
3	02/03/2017	29/03/2017	23.8	21.7	23.0	23	1.1	5	2.6	16.1	100	Good	Good
4	29/03/2017	26/04/2017	18.4	18.1	16.7	18	0.9	5	2.3	14.4	100	Good	Good
5	26/04/2017	31/05/2017	17.5	16.0	19.5	18	1.8	10	4.4	13	100	Good	Good
6	31/05/2017	28/06/2017	12.4	16.5	15.9	15	2.2	15	5.5	12	88.5	Good	Good
7	28/06/2017	02/08/2017	13.8	14.4		14	0.4	3	3.8	10	97	Good	Good
8	02/08/2017	30/08/2017	12.5	12.6	13.6	13	0.6	5	1.5	10	96	Good	Good
9	30/08/2017	27/09/2017	18.2	16.1	16.3	17	1.2	7	2.9	13	100	Good	Good
10	27/09/2017	31/10/2017	20.7	21.0	18.3	20	1.5	7	3.7	14	100	Good	Good
11	31/10/2017	06/12/2017	31.4	27.9	28.4	29	1.9	6	4.7	22.9	100	Good	Good
12	06/12/2017	04/01/2018	26.6	25.2	24.7	26	1.0	4	2.4	18.3	100	Good	Good
13													
										Overall survey -->		Good precision	Good Overall

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Port Talbot Fire Station 2017

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%		Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data		Bias calculated using 12 periods of data	
Bias factor A	0.74 (0.71 - 0.77)	Bias factor A	0.74 (0.71 - 0.77)
Bias B	36% (30% - 41%)	Bias B	36% (30% - 41%)
Diffusion Tubes Mean:	21 µgm^{-3}	Diffusion Tubes Mean:	21 µgm^{-3}
Mean CV (Precision):	7	Mean CV (Precision):	7
Automatic Mean:	16 µgm^{-3}	Automatic Mean:	16 µgm^{-3}
Data Capture for periods used:	98%	Data Capture for periods used:	98%
Adjusted Tubes Mean:	16 (15 - 16) µgm^{-3}	Adjusted Tubes Mean:	16 (15 - 16) µgm^{-3}

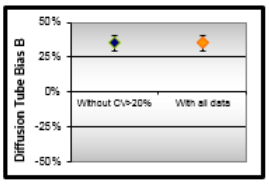


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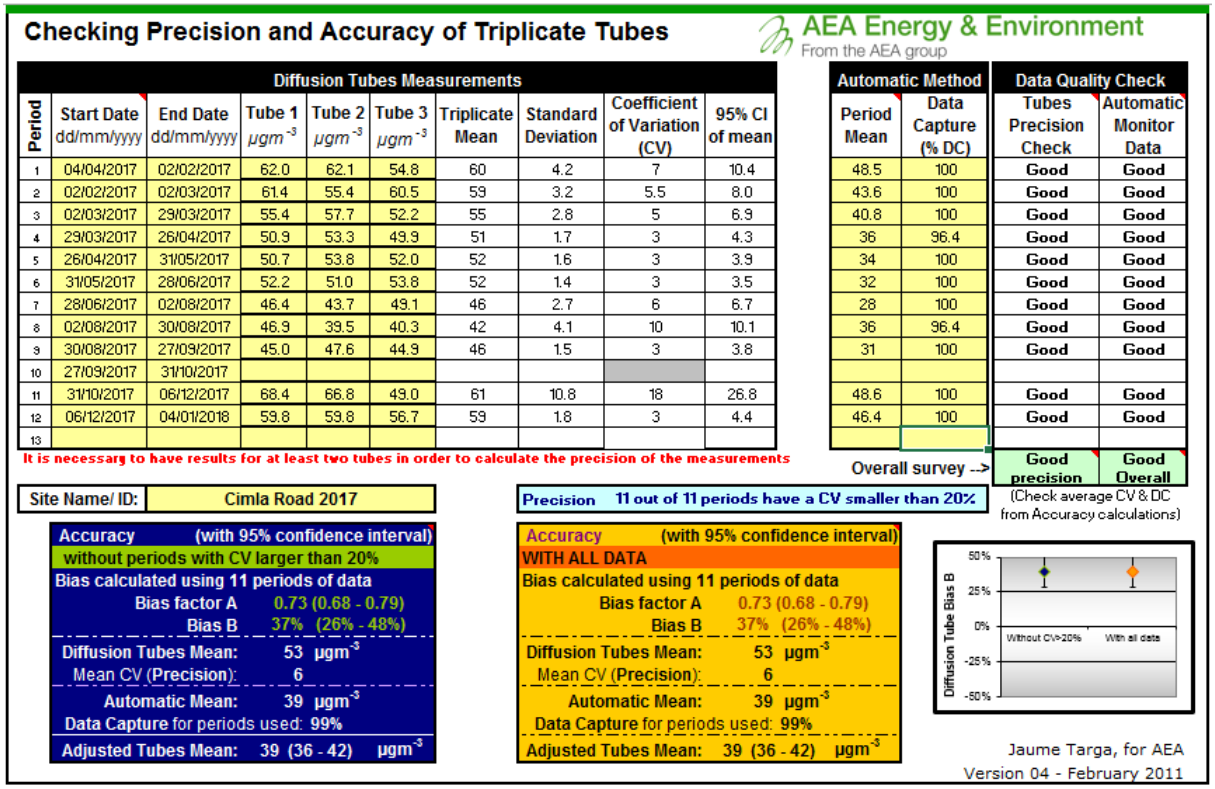
Figure A2 – Cimla Road - Bias adjustment spreadsheet -



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Automatic Method: Period Mean	Automatic Method: Data Capture (% DC)	Data Quality Check: Tubes Precision Check	Data Quality Check: Automatic Monitor Data
1	04/04/2017	02/02/2017	62.0	62.1	54.8	60	4.2	7	10.4	48.5	100	Good	Good
2	02/02/2017	02/03/2017	61.4	55.4	60.5	59	3.2	5.5	8.0	43.6	100	Good	Good
3	02/03/2017	29/03/2017	55.4	57.7	52.2	55	2.8	5	6.9	40.8	100	Good	Good
4	29/03/2017	26/04/2017	50.9	53.3	49.9	51	1.7	3	4.3	36	96.4	Good	Good
5	26/04/2017	31/05/2017	50.7	53.8	52.0	52	1.6	3	3.9	34	100	Good	Good
6	31/05/2017	28/06/2017	52.2	51.0	53.8	52	1.4	3	3.5	32	100	Good	Good
7	28/06/2017	02/08/2017	46.4	43.7	49.1	46	2.7	6	6.7	28	100	Good	Good
8	02/08/2017	30/08/2017	46.9	39.5	40.3	42	4.1	10	10.1	36	96.4	Good	Good
9	30/08/2017	27/09/2017	45.0	47.6	44.9	46	1.5	3	3.8	31	100	Good	Good
10	27/09/2017	31/10/2017											
11	31/10/2017	06/12/2017	68.4	66.8	49.0	61	10.8	18	26.8	48.6	100	Good	Good
12	06/12/2017	04/01/2018	59.8	59.8	56.7	59	1.8	3	4.4	46.4	100	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Good precision | Good Overall

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Cimla Road 2017

Precision: 11 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A 0.73 (0.68 - 0.79)
Bias B 37% (26% - 48%)
Diffusion Tubes Mean: 53 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 39 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 39 (36 - 42) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 0.73 (0.68 - 0.79)
Bias B 37% (26% - 48%)
Diffusion Tubes Mean: 53 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 39 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 39 (36 - 42) µgm^{-3}

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The locally derived bias adjustment factor of 0.74 is derived from the average of the two sites e.g. (0.73 + 0.74) / 2.

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.

Short-term to Long-term Data adjustment

No NO_2 diffusion tube monitoring sites experienced data capture rates lower than 75% during 2017. Consequently, no long-term data adjustment was necessary.

QA/QC of automatic monitoring

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

All PM_{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 with Ricardo which provides for two site audits per year and QA/QC of the data which is polled by AEAT and disseminated on the Welsh Air Quality Forum website. Data is subject to a similar QA/QC standard as the AURN.

QA/QC of diffusion tube monitoring

ESG 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:

https://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html