Cyngor Castell-nedd Port Talbot
Neath Port Talbot Council

NEATH PORT TALBOT COUNCIL

CABINET
9th December 2020

Director of Environment and Regeneration
Nicola Pearce

Matter for Monitoring

Wards Affected: All

2020 Air Quality Progress Report

Purpose of the Report

To inform members of the results of pollution monitoring carried out during the calendar year of 2019, and obtain approval to place a copy of the report on the Council's website and send copies to the Welsh Government.

Executive Summary

The 2020 Air Quality Progress Report for Neath Port Talbot Council 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 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.

This report presents the results of pollution monitoring carried out during the 2019 calendar year and seeks approval to send a copy of the report to Welsh Government.

Background

Progress Reports are produced by the Council annually and cover new monitoring data; new local developments; the local air quality strategy; new planning applications; planning policies; local transport plans and policies; implementation of LAQM action plans; and any other changes that might affect air quality.

The Council opts to include information on non-LAQM pollutants in addition to the more narrow LAQM range of pollutants required for inclusion in LAQM reports. LAQM Progress reports are required to be provided to WG as the devolved administration has responsibility for compliance with national air quality objectives.

The report present the results of pollution monitoring data collected during the calendar year 2019. The data includes results from continuous and non-continuous equipment, some of which is supplied to national pollution monitoring networks. Conclusions are drawn about air quality based upon this information.

The Progress Report follows the format suggested by Welsh Government. Following consideration by Members, the report will be available on the Council's website alongside all previous air quality management reports.

2020 Air Quality Progress Report

A summary of the main findings from the 2020 report is provided below:

- Neither the long-term nor the short-term Air Quality Objectives for PM_{10} were breached in Port Talbot. The Taibach/Margam Air Quality Management Area (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.

- 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 have continued the trend toward decreasing concentrations. Measurements at Port Talbot Fire station also decreased and continue to easily comply with air quality objectives.

- Ozone is not covered by Local Air Quality Management because trans-boundary pollution can have a significant effect upon local results. Ozone exceedances in 2019 were significantly down on the previous year and the long-term trend is downwards.

- The concentration of polyaromatic hydrocarbons at Port Talbot whilst exceeding the Air Quality Objective of 0.25 ng/m^3, has never exceeded the EU target value of 1 ng/m^3. The 2019 annual average concentration of 0.32 ng/m^3 was less than half that recorded in the previous year. This was presumably due to improvements at the steel works.

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

- Nickel concentrations exceeded the EU Target of 20 ng/m^3 at Tawe Terrace only. Although the annual average nickel concentration is significantly improved upon the previous year, it is not compliant as was the case in 2017. These non-compliances are linked to the Wall Colmonoy Plant and consequently, enhanced regulation will continue to be implemented with an emphasis on maintenance procedures.

- Nuisance dust related to activities at Tata Steel Works, continues to be an issue in Port Talbot, although it does not have an impact upon health in the same way as other pollutants. Whilst the Port Talbot sites at the Fire Station and Prince Street remain the top ranked in the County Borough, the average fallout rate has decreased by 4% and 37% respectively compared to the previous year.

Financial Impacts

No implications.

Integrated Impact Assessment

There is no requirement to undertake an Integrated Impact Assessment as this report is for monitoring purposes.

Valleys Communities Impacts

No implications.

Workforce Impacts

No implications.

Legal Impacts

No implications.

Risk Management Impacts

There are no implications for risk management on this item.

Consultation

There is no requirement for external consultation on this item.

Recommendations

That having considered the report, it is resolved to make the following recommendations:

1. The findings of the 2020 Air Quality Progress Report as presented in Appendix 1 be noted.

2. Approval is given to publish the report on the Council website and to send a copy to Welsh Government for information.

Reasons for Proposed Decisions

To fulfil 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 relevant Policy and Technical Guidance documents.

Implementation of Decision

Not applicable.

Appendices

Appendix 1 – 2020 Air Quality Progress Report

List of Legislation and Guidance Documents

None.

Officer Contact

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APPENDIX 1

2020 Air Quality Progress Report

Neath Port Talbot Council

2020 Air Quality Progress Report

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

Date (November, 2020)

Local Authority Officer	M. Hooper
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Report Reference number	E2/16/9/2020 PR
Date	November 2020

Executive Summary: Air Quality in Our Area

Air Quality in Neath Port Talbot

The main air quality issues in Neath Port Talbot are:

- Fine particulates (PM_{10}) in Port Talbot.

  This mainly relates to emissions from the steel works, which is regulated by Natural Resources Wales (NRW). The trend since declaration of the Taibach Margam AQMA in 2000 is towards lower pollution levels, but it is not yet considered to be safe to revoke the air quality management area (AQMA). The Council works with Welsh Government, Tata and Natural Resources Wales (the regulator) in order to manage air quality.

- Large particulates (nuisance dust) fallout in Port Talbot

  Nuisance dust is also mainly an issue in Port Talbot which is related to activities at the steel works.

- Polyaromatic hydrocarbons (PAH) in Port Talbot

  This is also an issue which is related to activities at the Port Talbot steel works e.g. coke ovens. The regulator is working with Tata in order to address this issue. The long-term trend is increasing.

- Nickel in Pontardawe.

  The main source of raised nickel levels in Pontardawe is the Wall Colmonoy works, which is regulated by the Council. 2019 was not compliant, but an improvement on 2018.

Actions to Improve Air Quality

The principal actions in the Taibach Margam AQMA air quality action plan are described in the NRW dust action plan. These are specific actions agreed between the regulator and Tata to reduce pollution from the steelworks.

In addition to working with Tata and NRW, Neath Port Talbot Council also works with Welsh Government and other organisations to better understand and combat pollution from the works.

The Council is regulator of the business in Pontardawe which is the principal contributor to nickel levels in the area. The Council works with the operator to ensure that the business is operated using Best Available Techniques (BAT). The aim is to minimise emissions. The Council also works with Welsh Government and other process operators in the region with this aim in mind.

Local Priorities and Challenges

The Council will continue to work with NRW, Tata and Welsh Government to understand and minimise particulate emissions from the steelworks.

The Council will continue to focus on regulation of Wall Colmonoy in Pontardawe in order to attempt to drive nickel levels below the EU Target as was the case in 2017.

In both of the above cases the main challenge is to understand the precise sources of emissions of which there are potentially several at each location.

How to Get Involved

The data from continuous pollution analysers operated by the Council can be found on the Welsh Air Quality website:

https://airquality.gov.wales/

Other information can be found in Local Air Quality Management documents such as this one, which are available on the Council website.

https://www.npt.gov.uk/

Summary – air quality measurements

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 have continued the trend toward decreasing concentrations. Measurements at Port Talbot Fire station also decreased 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).

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. Ozone exceedances in 2019 were significantly down on the previous year and the long-term trend is downwards.

Whilst the concentration of polyaromatic hydrocarbons at Port Talbot exceeds the Air Quality Objective of 0.25 ng/m^3, it has never exceeded the EU target value of 1 ng/m^3. The 2019 annual average concentration of 0.32 ng/m^3 was less than half that recorded in the previous year. This was presumably due to improvements at the steel works.

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

Nickel concentrations exceeded the EU Target of 20 ng/m^3 at Tawe Terrace only. Although the annual average nickel concentration is significantly improved upon the previous year, it is not compliant as was the case in 2017. Consequently, enhanced regulation will continue to be implemented with an emphasis on maintenance procedures.

None of the 24 planning applications considered on grounds of air quality were considered to pose a risk to compliance with air quality objectives.

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 2020.

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1. Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

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

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

The 2006 USA showed that it would be necessary to proceed to a Detailed Assessment in respect of nitrogen dioxide. Several busy roads were identified for which accurate speed information was not available. Therefore it would be 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.

A Progress Report was submitted in 2017, which reported the closure of the continuous NO_2 analyser at Pontardawe, on account of the reduction in pollution levels at the Fire Station site. The NO_2 air quality objective was not exceeded at any location.

A Progress Report was submitted in 2018, which once again showed a decreasing trend for NO_2 levels at Victoria Gardens and no exceedances of the air quality objectives at any location.

Table 1.1 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	Nox analyser at Pontardawe Post Office site removed in July 2016 due to reduced NO_2 concentrations.
Progress report	July 2018	No breaches of air quality objectives.
Progress report	September 2019	No breaches of air quality objectives.

1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (see Appendix B)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

Details of the AQMA declared by Neath Port Talbot County Borough Council can be found in Table 1.2. Further information is available online at https://uk-air.defra.gov.uk/aqma/details?aqma_ref=76

The AQMA is shown shaded in Figure 1.1 below.

Figure 1.1 Taibach Margam AQMA

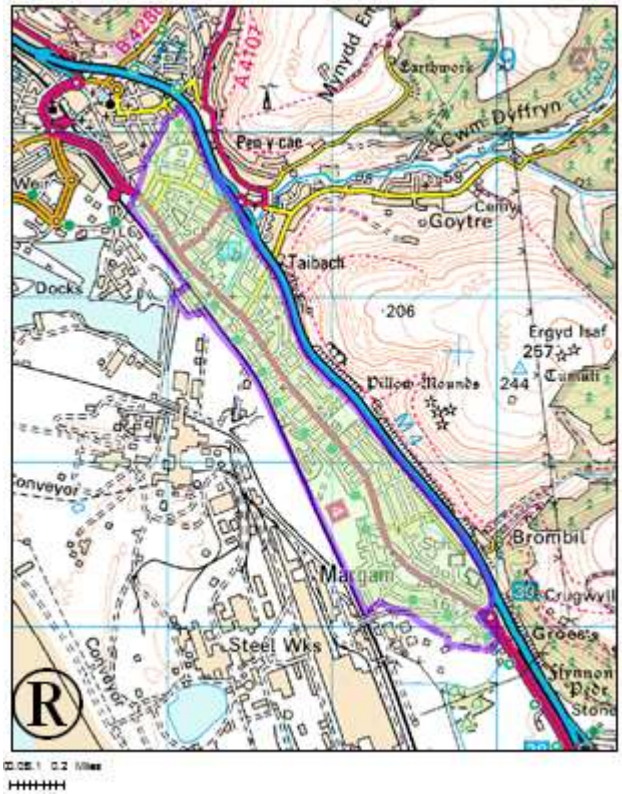


Table 1.2 – Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend	City / Town<Delete column if not relevant>	Description	Action Plan
AQMA Taibach Margam	PM_{10} 24-hour mean	There has been a gradual decrease in PM_{10} exceedance days since declaration of the AQMA	Port Talbot	A residential area between the steel works and M4.	https://www.npt.gov.uk/media/4171/aqap2012.pdf

1.3 Implementation of Action Plans

Neath Port Talbot County Borough Council has taken forward a number of measures during 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Tables 1.3 and 1.4. More detail on these measures can be found in the Air Quality Action Plan.

Air Quality Action Plans are continuously reviewed and updated whenever deemed necessary, but no less frequently than once every five years. Such updates are completed in close consultation with local communities.

Key completed measures completed in 2019 are:

Table 1.3 - Action Plan Items and Progress

No.	Measure	Progress in Last 12 Months
A1	Multi agency interaction	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. 3 X Tata Joint Consultative Committee meetings.
A2	Dust reduction programme at Tata site	**General** . Revised site Air Quality Management Plan (AQMP) incorporating new dust forecasting procedures, risk assessment matrices and communication protocols for Tata personnel. . Development of a dedicated Dry Weather Action Plan which links to the overarching site AQMP. . Harmonising environmental incident reporting across the steelworks, promoting wider understanding of activities and/or incidents which could generate dust. . Completed review/rationalisation of Tata's on-site ambient monitoring network, including trial and deployment of new *AQ Mesh* gaseous and particulate monitoring instruments. . Additional dust deposition monitors deployed off-site to allow analysis by Tata using X-Ray Diffraction (XRD) techniques. . Site-wide speed limit reduced to 20mph to reduce fugitive dust from vehicle movements. . Review/rationalisation of water spraying/bowsering and road sweeping routes across the steelworks. **Coke ovens** . Major ongoing works to refurbish and renew coke oven doors and coke oven tops (comprising charge holes, ascension pipes, spigots and caps).

No.	Measure	Progress in Last 12 Months
		Rate of renewal has been limited by difficult working environment (live coke ovens) and need to maintain thermal balance and integrity of batteries. . Statutory Notice issued July 2018 in response to persistent non-compliant emissions from the coke ovens. Tata Steel responded to NRW's notice in August 2018 and has subsequently delivered against the agreed coke ovens compliance plan. . Steady, incremental improvement noticed in coke oven door emissions performance during 2018. Progress more difficult (but not impossible) to achieve for tops and charging emissions. . Ongoing oven end flue repair programme to improve coal carbonisation rates within individual ovens and reduce the incidence of 'black pushes'. . Coke pushing: a replacement 'Ministerstein' mobile fume extraction hood is planned for 2019 (at significant cost). This new system should offer greater fume capture capability and reliability. **Raw materials** . Trials of coloured fugitive dust suppressants which can be applied to stockpiled raw materials and re-applied as the colour fades (indicating that further application is needed) . Improved wheel wash capability within stockyards . Repairs to various stockyard and site haul roads, reducing fugitive dust formation and lift-off . Barrier/bund extension project at north-west corner of stockyards. This is a passive screening measure to reduce windblown dust lift-off – ongoing. **Sinter Plant** . Statutory Notice issued July 2018 in response to persistent non-compliant emissions from the sinter plant main stack. Tata Steel responded in August 2018 and has subsequently delivered against the agreed sinter plant compliance plan.

No.	Measure	Progress in Last 12 Months
		. Major repair and refurbishment of the sinter plant Electrostatic Precipitators (ESPs) – complete. Maintenance patterns have been reviewed following completion. . Ongoing periodic repair/refurbishment of the sinter plant wind mains and ducting. . Extra sensors fitted to detect air ingress into ESP system and identify leaks more easily. . Improved valves between ESPs and dust conveyors, along with revised maintenance regime. . ESP data analysis to assess effectiveness of individual power fields and investigate dust emission 'spikes' – ongoing. . Critical review of operation of mechanical dust 'rappers' which dislodge captured dust within the ESPs – ongoing. . Optimisation of ESP electrical fields to improve dust capture performance – ongoing. . Replacement of dust suppression foam system metal pipework with plastic components to reduce biological fouling – complete. . Adjustment of raw material blends to improve sinter strength and process stability, reducing overall emissions. . Commitment by Tata Steel to fit a bag filter to the sinter de-dust system, replacing the existing ESP and offering better environmental performance over a longer period. Planning permission obtained December 2018. **Ironmaking** . Scrutiny and review of blast furnace bleeder valve releases in 2018. . No.5 Blast Furnace: Major repair and campaign life extension (Sep 2018 – Jan 2019). . No.5 Blast Furnace: Cast house fume extraction system enhancements. . No.5 Blast Furnace: Gas cleaning plant improvements. . Additional coke screening to improve homogeneity, furnace performance

No.	Measure	Progress in Last 12 Months
		and process stability. **Steel & Slab** . BOS Plant Fume Extraction Plant (FEP) Project Phase 1 – complete. . BOS Plant converter vessel replacement project – ongoing. . BOS Plant Fume Extraction Plant (FEP) Project Phase 2 – ongoing. . CCTV camera system fitted providing BOS Control with external views of fugitive emissions. . Review of scrap metal mix to minimise instability triggered by certain scrap types – ongoing. . Increased automation of oxygen lance systems to minimise process instability – ongoing. . Regular review of slop events to better understand conditions leading up to slop. **Energy** • Commencement of groundworks for Tata's power plant enhancement project, which will replace some older plant with more modern, efficient equipment offering better environmental performance.
A3	Planning Policies	LDP issued.

No.	Measure	Progress in Last 12 Months
A4	Tree Planting	The Council is taking a more strategic approach to the management, enhancement and creation of Green Infrastructure, for the benefit of people and wildlife. Funding was secured from WG from the GI Capital Fund in 2018 to develop GI opportunity and demand maps, and deliver a demonstration project, whilst funding for further implementation was secured as part of the ENRaW (Enabling Natural Resources and Well-being) WG fund for 2019/20. As part of this grant, over 6000 saplings were planted and 160 large standards were planted throughout the county borough, in schools and urban locations, including the Port Talbot area. Further funding is being sought from a second ENRaW application, for the period from April 2020, until March, 2023. An outcome is awaited from WG, and if successful, would provide the opportunity to further deliver GI intervention in Neath Port Talbot.
A5	Transport infrastructure (PDR)	Project now complete.
A6	Train haulage emissions	There were no complaints about dusty trains in Port Talbot during 2018.
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	There have been no changes to travel plans in 2018.
A9	School Travel Plans	A total of 61 school travel plans are in place in the County Borough.
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 is typically employed in accordance with a request from Tata.

No.	Measure	Progress in Last 12 Months
A14	Public and industrial air alerts	The industrial air alerts system is used by 151 subscribers. The trial of the public system is complete and there are currently no plans to continue with the public facing system.

Neath Port Talbot County Borough Council expects the following measures to be completed over the course of the next reporting year:

A report from the University of the West of England (UWE) is expected to be finalised, which will critically assess the measures taken to date in order to investigate and understand the sources of PM_{10} in Port Talbot. This report might also contain recommendations for further studies.

Further improvements to the dust reduction programme and arrangements for dealing with complaints have been agreed between Tata and NRW. These arrangements are detailed and have been described in a letter from Martin Brunnock (Hub Director Strip Products UK) to Paul Gibson of NRW.

Table 1.4 – Progress on Measures to Improve Air Quality

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
A2	Dust reduction programme at Tata site	Reduce particulate emissions via NRW regulation	NRW	2000	2001-present	Implementation of various improvement schemes	Impossible to quantify	Various improvements. See previous Progress reports.	See table 1.2 above	None. The dust reduction programme will continue for the foreseeable future	Impossible to quantify
A1	Multi-agency interaction	Cooperation between various organisations to investigate PM_{10} exceedances	Welsh Government	2000	2001-present	See previous Progress reports	Impossible to quantify	Various investigations, most recently the King's College monitoring report.	UWE report in preparation for 2019.	Not known	Impossible to quantify
A3	Planning policies	Resist developments on air quality grounds where appropriate	NPT	2000	2001-present	None	Impossible to quantify	UDP now in force	UDP continued	UDP complete	Impossible to quantify
A5	Transport infrastructure (PDR)	Provide alternative route for traffic and slightly reduce pollution	NPT	2010	Completed 2013	None	Impossible to quantify	PDR complete	PDR complete	PDR complete	Impossible to quantify

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
A7	NPT regulated activities	Regulate Civil & Marine slag cement to minimise PM_{10} emissions	NPT	n/a	Ongoing	Compliance with permit	Impossible to quantify	Emissions comply with permit	Emissions comply with permit	Ongoing	Impossible to quantify
A6	Train haulage emissions	Investigate cases of visible mineral emissions from trains	NPT	n/a	Ongoing	Avoidance of visible emissions	Impossible to quantify	No problems in recent years	No problems reported	Ongoing	Impossible to quantify
A11	Industrial fires	Minimise large industrial fires by identifying risky sites and taking remedial action	NPT, NRW	n/a	Ongoing	Avoidance of industrial fires in Port Talbot	Impossible to quantify	No problems in recent years	No problems reported	Ongoing	Impossible to quantify
A12	Hill fires	Prevent hil fires in vicinity of Port Talbot	MAWWFIRE	n/a	Ongoing	Minimise hill fires through education	Impossible to quantify	Community Fire Safety Team targets schools and farmers	No problems reported	Ongoing	Impossible to quantify
A14	Air Alerts	Provide email alert system notifying NRW, WG, Tata etc. to intervene where pollution levels are raised	NPT	n/a	Ongoing	System operates as expected	Impossible to quantify	System has been operational for some years	151 users currently subscribed	Ongoing	Impossible to quantify
A8	Travel plans	Minimise traffic and emissions by use of public transport etc.	NPT	n/a	Ongoing	Travel plan implemented	Impossible to quantify	Part implemented but not complete.	None	Not known	Impossible to quantify

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
A9	School travel plans	Reduce the impact of the school journey in the AQMA	NPT	n/a	Ongoing	Number of plans in place	Impossible to quantify	61 plans in place	4 new plans	Ongoing	Impossible to quantify
A4	Tree planting	Trees may help to reduce airborne particulates	Tata, NRW, NPT	n/a	Ongoing	Number of trees and shrubs planted	Impossible to quantify	Tree planting in Port Talbot.	Pilot project completed	Not known	Impossible to quantify
A10	Domestic bonfires	Minimise through education and recycling	NPT	n/a	Ongoing	Provision of green waste recycling	Impossible to quantify	Quantities vary from year to year depending on weather etc.	Approx 3500 tonnes at kerbside and 2300 tonnes at recycling centres.	Ongoing	Impossible to quantify
A13	Street sweeping	Can be carried out as required to remove particulates from the highway	NPT	n/a	Ongoing as required	The cleanliness of the street scene	Impossible to quantify	Sweeping has been carried out at Tata's request on several occasions	Sweeping carried out on PDR at Tata's request	Ongoing	Impossible to quantify

2. Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2019

2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

Neath Port Talbot County Borough Council undertook automatic (continuous) monitoring at 6 sites during 2019. Table presents the details of these sites. Monitoring data are available at http://www.welshairquality.co.uk/.

Maps showing the location of the remaining monitoring sites are provided in Figures 2.1 and 2.2.

Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

2.1.2 Non-Automatic Monitoring Sites

Neath Port Talbot County Borough Council undertook non-automatic (passive) monitoring of NO_2 at 27 sites during 2019. Table 2.2 presents the details of the sites.

Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

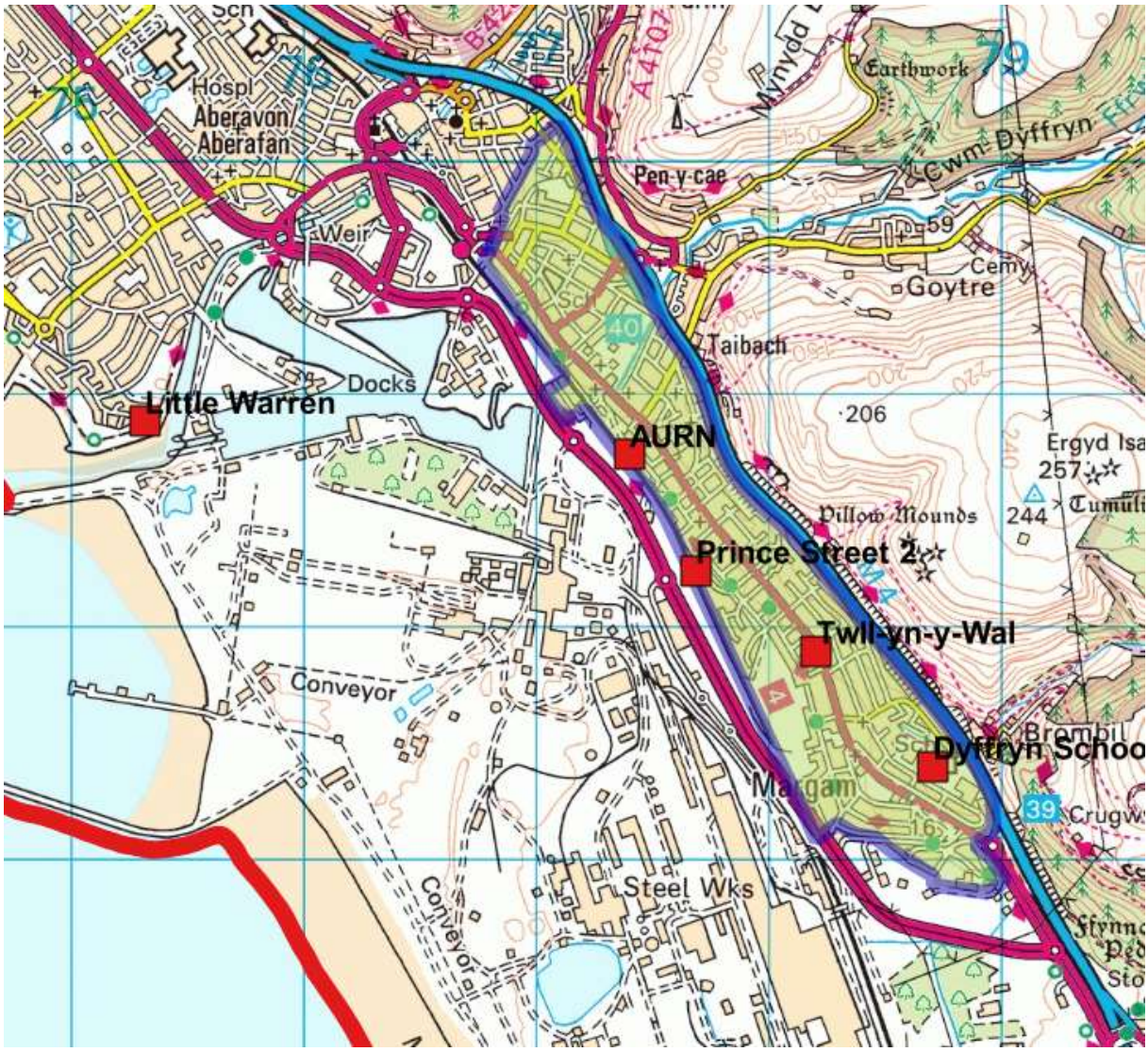
Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with (Named) AQMA?	OS Grid Reference		Pollutants Monitored	Monitoring Technique	Inlet Height (m)	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y						
PT2	Port Talbot Fire Station	Industrial	Y	277388	188733	PM_{10}, $PM_{2.5}$, SO_2, CO, O_3, NO_2	FDMS, UV fluorescence, IR absorption, UV absorption, chemiluminescence	2.5	16	8	4
DS1	Dyffryn School	Industrial	Y	278700	187387	PM_{10}	FDMS	1.8	45	4	45
TW1	Twll-yn-y Wal Park	Industrial	Y	278196	187891	PM_{10}	FDMS	1.8	14	2	4
LW1	Port Talbot Little Warren	Industrial	N	275313	188879	PM_{10}	FDMS	2.5	35	7	53
PS2	Prince St.	Industrial	Y	277689	188235	PM_{10}, $PM_{2.5}$	FDMS	1.8	45	6	57
VG2	Victoria Gardens	Roadside	N	275471	197183	NO_2	Chemiluminescence	1.2	18	19	2

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such **no distance calculation is required**

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

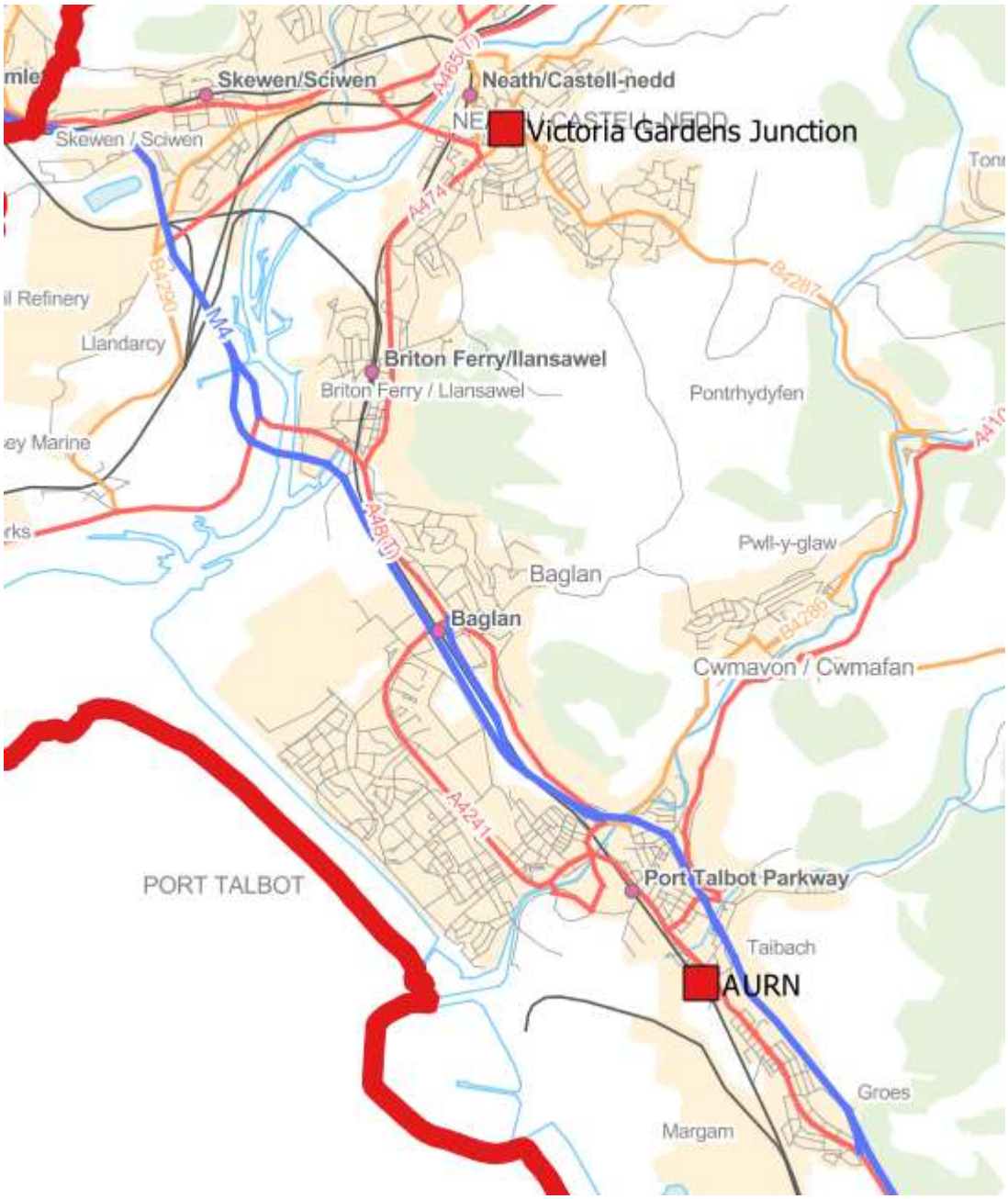


Figure 2.3 NO_2 analyser at Cimla Road/Victoria Gardens in Neath

Table 2.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
1	1 Victoria Gardens, Neath	Roadside	N	275463	197217	2.0	N	0	1	1
3	11 College Green, Margam, Port Talbot	Urban background	Y	278794	187237	1.5	N	2	4	4
4	8 Victoria Gardens, Neath	Roadside	N	275494	197272	1.5	N	2	4	4
5	28 Eastland Road, Neath	Roadside	N	275420	197161	1.5	N	0	4	4

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
7	Moby's, Neath Road, Briton Ferry	Roadside	N	274312	194601	2.0	N	2	2	2
8	185 Neath Road, Briton Ferry	Roadside	N	274307	194580	2.0	N	0	2	2
9	179 Neath Road, Briton Ferry	Roadside	N	274305	194563	2.0	N	0	2	2
10	187 Neath Road, Briton Ferry	Roadside	N	274308	194584	2.0	N	0	2	2

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
11	189 Neath Road, Briton Ferry	Roadside	N	274310	194589	2.0	N	0	2	2
12	34 Eastland Road, Neath	Roadside	N	275427	197139	1.5	N	0	4	4
13	40 Eastland Road, Neath	Roadside	N	275415	197110	1.5	N	0	4	4
14	32 Eastland Road, Neath	Roadside	N	275431	197149	1.5	N	0	4	4

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
15	30 Eastland Road, Neath	Roadside	N	275434	197157	1.5	N	0	4	4
16	5 Victoria Gardens, Neath	Roadside	N	275464	197230	1.5	N	0	3	3
17	1 Greenway Road, Neath	Roadside	N	275455	197211	2.0	N	0	2	2
18	Pontardawe Post Office	Roadside	N	272034	203954	2.0	N	0	2	2
19	Port Talbot Fire Station	Industrial	Y	277399	188734	2.5	Y	16	8	4

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
20	3 Victoria Gardens, Neath	Roadside	N	275463	197223	1.5	N	0	3	3
21	50 Greenway Road, Neath	Roadside	N	275452	197195	2.0	N	0	2	2
22	54 Windsor Road, Neath	Roadside	N	275146	197248	2.0	N	0	2	2
23	4 Victoria Gardens, Neath	Roadside	N	275482	197227	1.5	N	0	3	3

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
24	Stockham's Corner Flats	Roadside	N	275200	196905	2.0	N	0	3	3
25	Old Fire Station, Water Street, Port Talbot	Roadside	N	276131	189926	2.0	N	0	2	2
26	10 Swansea Road, Pontardawe	Roadside	N	272019	203924	2.0	N	0	2	2

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
				X	Y					
27	11a Swansea Road, Pontardawe	Roadside	N	272016	203941	2.0	N	0	2	2
28	8 Swansea Road, Pontardawe	Roadside	N	272026	203961	2.0	N	0	2	2
34	Lights at Cimla Junction	Roadside	N	275472	197185	1.4	Y	20	2	2

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such **no distance calculation is required**.

Maps showing the location of the monitoring sites are provided in figures 2.4 to 2.8 below

Figure 2.4 Location of NO_2 diffusion tube sites

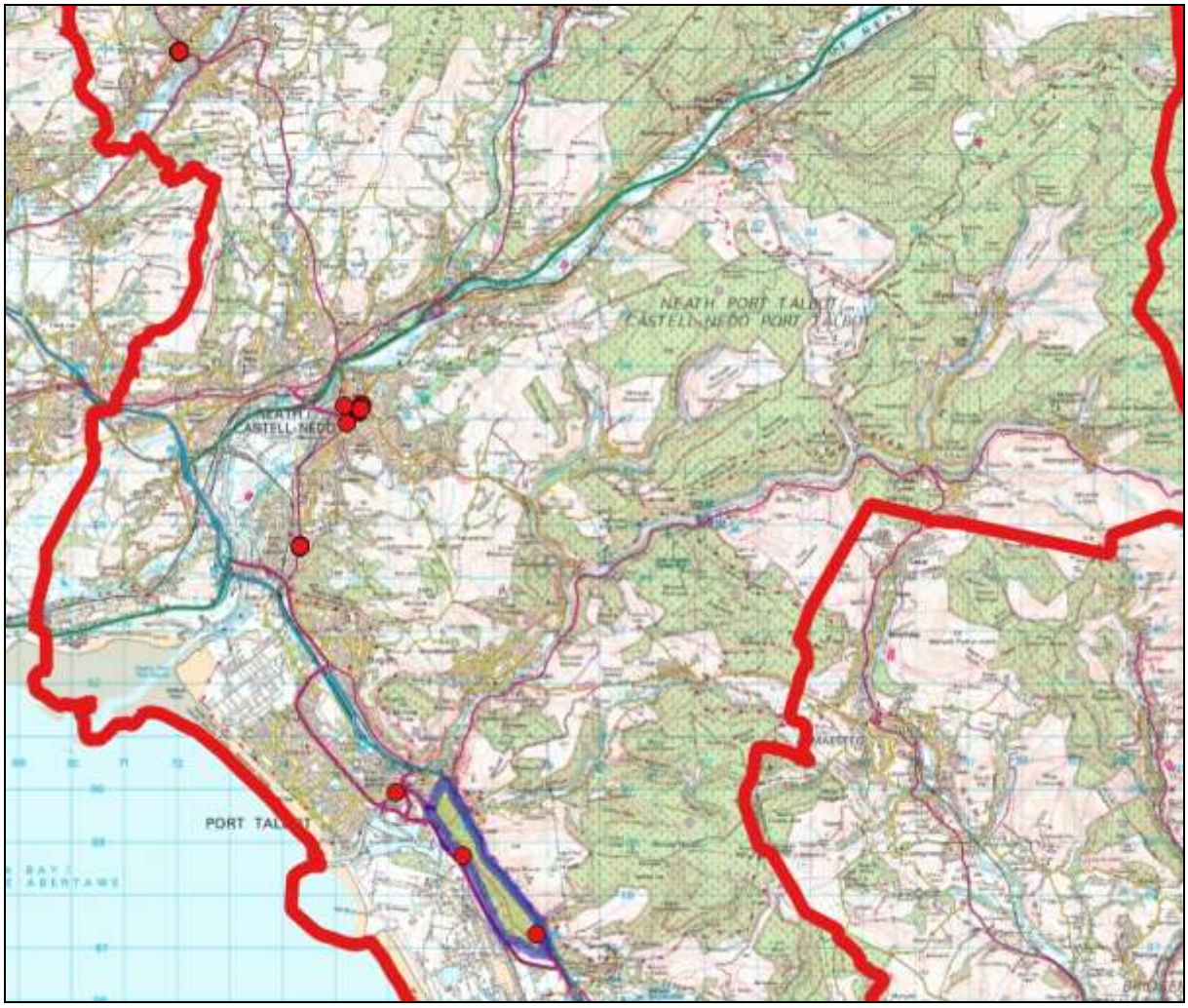
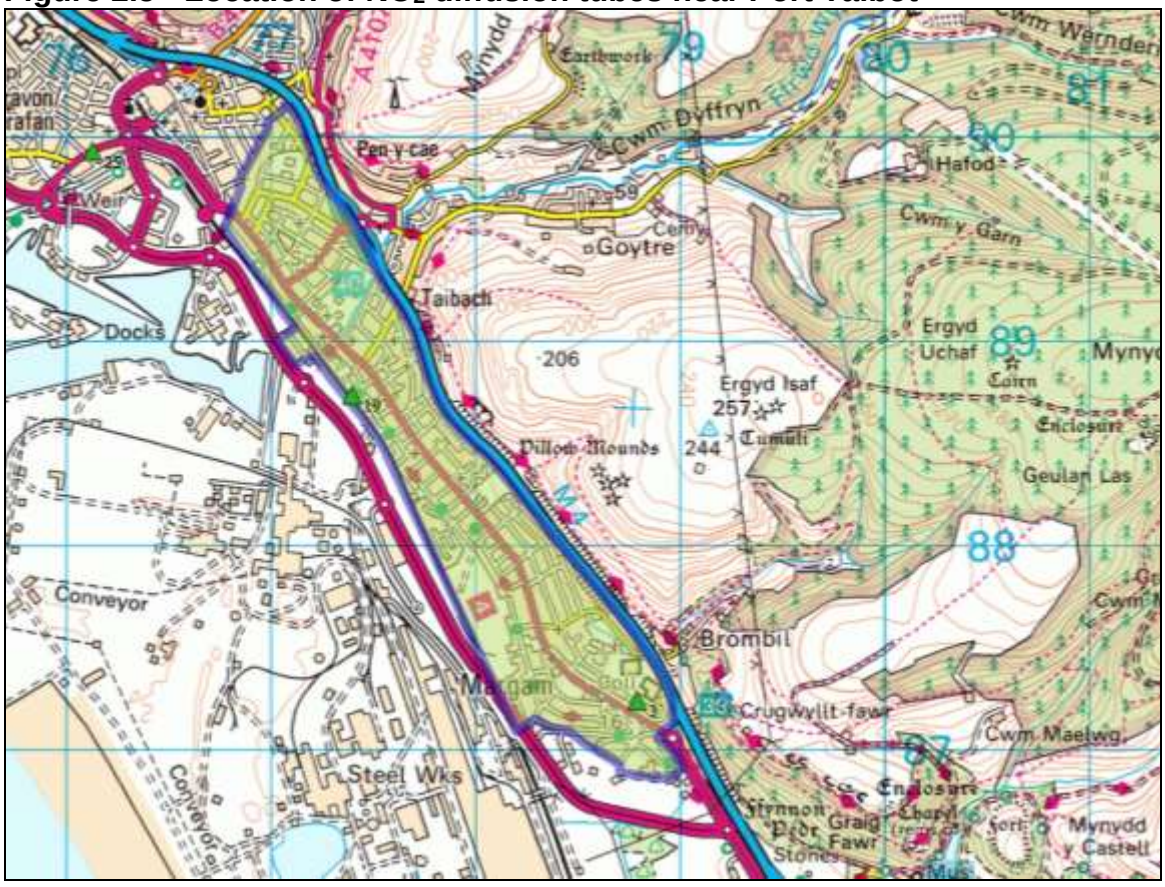


Figure 2.5 - Location of NO_2 diffusion tubes near Port Talbot



The Port Talbot AQMA is shaded green.

Figure 2.6 Location of NO_2 diffusion tubes in Briton Ferry

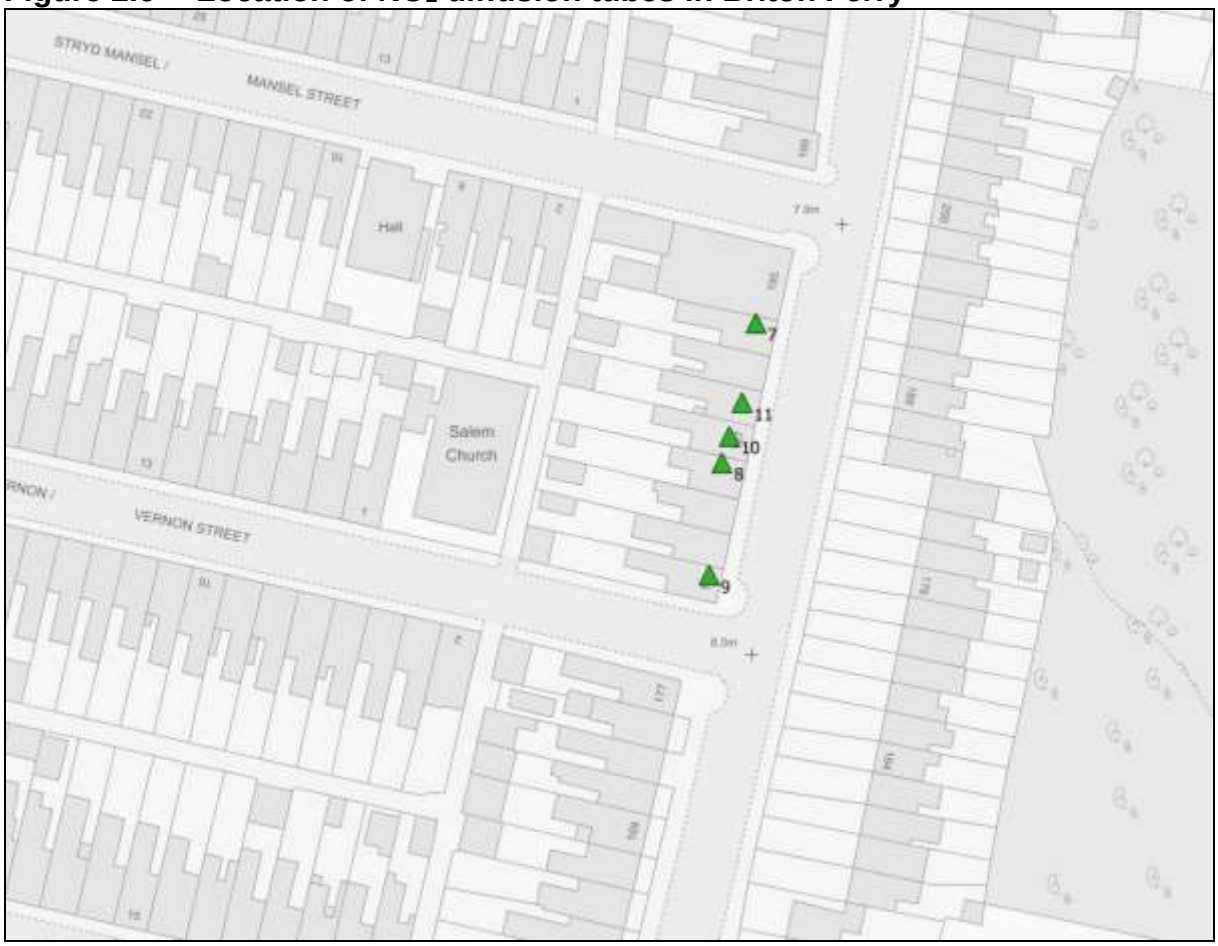
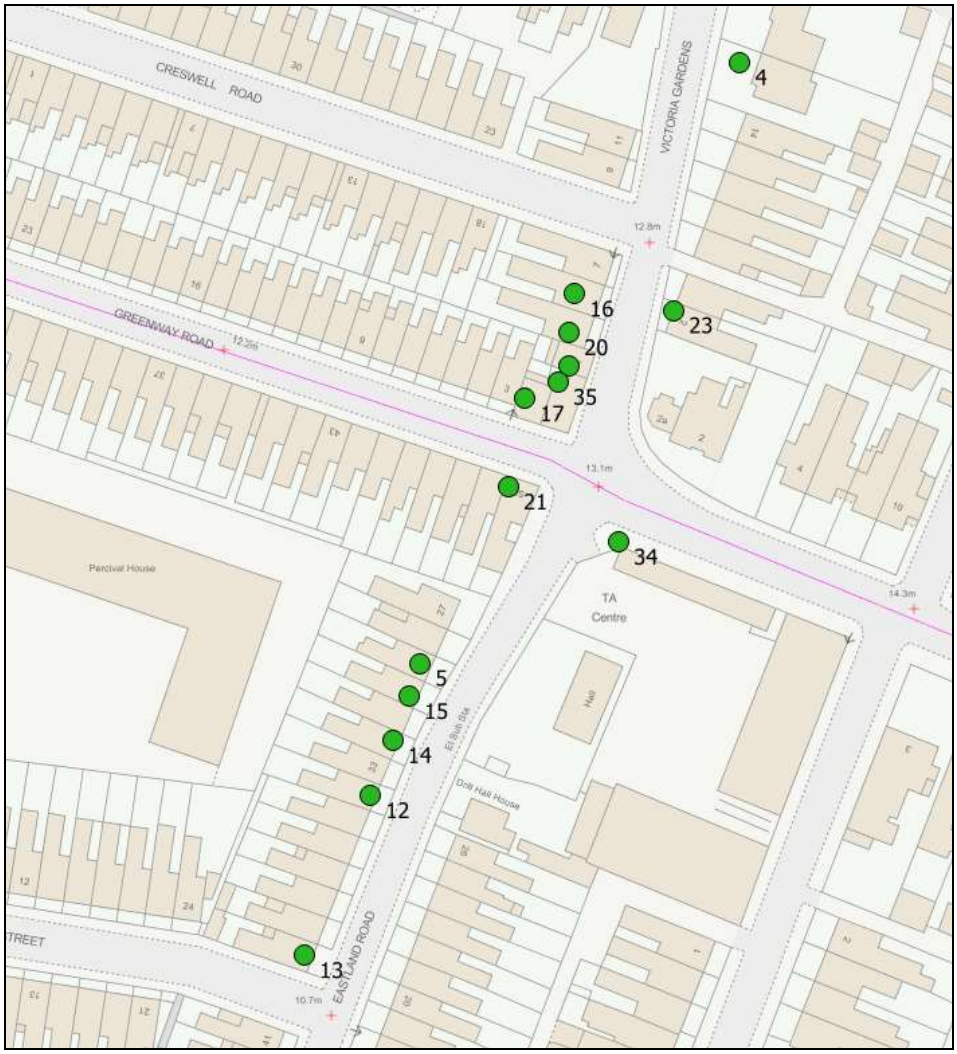


Figure 2.7 Location of NO_2 diffusion tubes in Neath

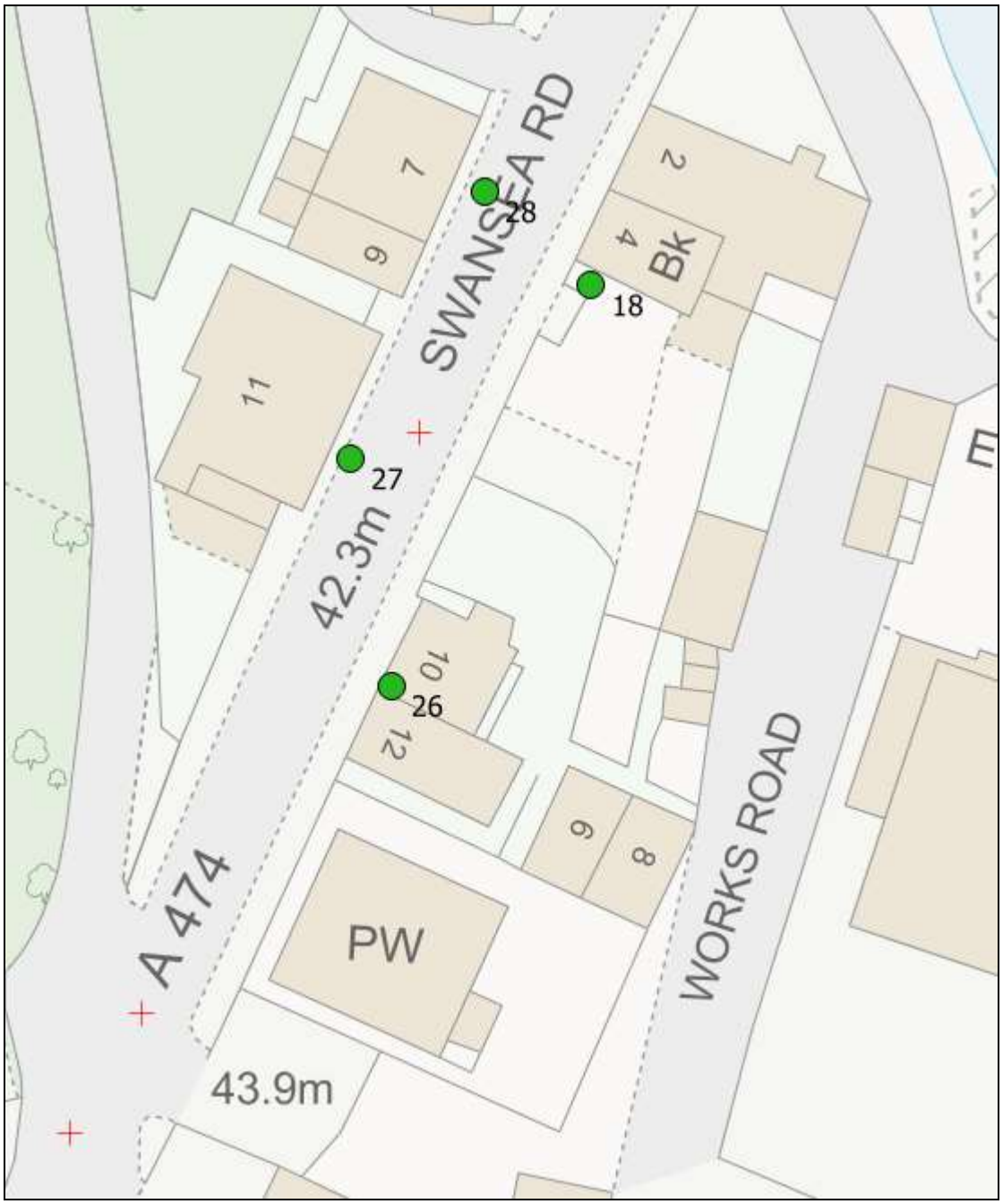
Victoria Gardens Junction



Windsor Road

Stockham's Corner

Figure 2.8 - Location of NO_2 diffusion tubes in Pontardawe



2019 Air Quality Monitoring Results

Table 2.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3)				
					2015	2016	2017	2018	2019
PT2	Industrial	Automatic	95	95	17	21	16	15	15
VG2	Roadside	Automatic	58	58	40	37	39	34	32
1	Roadside	Diffusion Tube (triplicate)	100	100	-	35.5	38.8	32.5	34.0
3	Urban background	Diffusion Tube	100	100	14.5	14.0	13.2	12.1	12.9
4	Roadside	Diffusion Tube	100	100	25.7	26.9	27.1	22.7	23.5
5	Roadside	Diffusion Tube	100	100	29.6	28.3	31	25.7	27.2
7	Roadside	Diffusion Tube (triplicate)	100	100	27.9	27.6	30.2	24.5	26.3
8	Roadside	Diffusion Tube	50	50	28.1	27.5	29.0	24.9	23.9
9	Roadside	Diffusion Tube	100	100	28.6	26.3	28.3	23.5	25.1
10	Roadside	Diffusion Tube	58	58	28.0	26.1	28.9	24.6	26.1

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
11	Roadside	Diffusion Tube	100	100	28.1	27.3	29.2	23.8	26.1
12	Roadside	Diffusion Tube	100	100	28.9	26.1	29.4	24.9	26.7
13	Roadside	Diffusion Tube	100	100	26.2	27.9	24.7	22.2	23.6
14	Roadside	Diffusion Tube	100	100	30.1	29.6	30.1	25.9	26.6
15	Roadside	Diffusion Tube	100	100	29.8	29.4	30.8	25.9	27.1
16	Roadside	Diffusion Tube	100	100	32.8	28.2	24.2	29.2	30.2
17	Roadside	Diffusion Tube	100	100	33.9	36.8	38.2	29.3	31.3
18	Roadside	Diffusion Tube (triplicate)	100	100	36.8	33.9	37.1	32.6	36.8
19	Industrial	Diffusion Tube (triplicate)	100	100	16.6	16.8	15.6	13.7	15.7
20	Roadside	Diffusion Tube (triplicate)	100	100	34.1	31.8	33.6	28.6	29.8
21	Roadside	Diffusion Tube	100	100	39.5	33	35.8	32.8	33.7

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
22	Roadside	Diffusion Tube	83	83	25.1	22.6	25.7	21.1	21.3
23	Roadside	Diffusion Tube	100	100	27.4	29.6	34.4	26.1	26.2
24	Roadside	Diffusion Tube (triplicate)	100	100	29.2	27.9	29.9	25.4	28.0
25	Roadside	Diffusion Tube	92	92	24.2	26.8	26.4	24.1	27.7
26	Roadside	Diffusion Tube	100	100	32.7	30.9	34.7	29.9	33.0
27	Roadside	Diffusion Tube	100	100	39.1	36.6	38.3	34.4	37.0
28	Roadside	Diffusion Tube	100	100	27.6	26.1	27.5	24.2	24.4
34	Roadside	Diffusion Tube (triplicate)	100	100	**46.6**	**40.3**	39.0	36.7	36.6

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(4) A nationally derived bias adjustment factor of 0.75 was used as shown in Appendix C.

Figure 2.9 – Trends in Annual Mean NO_2 Concentrations – continuous monitoring

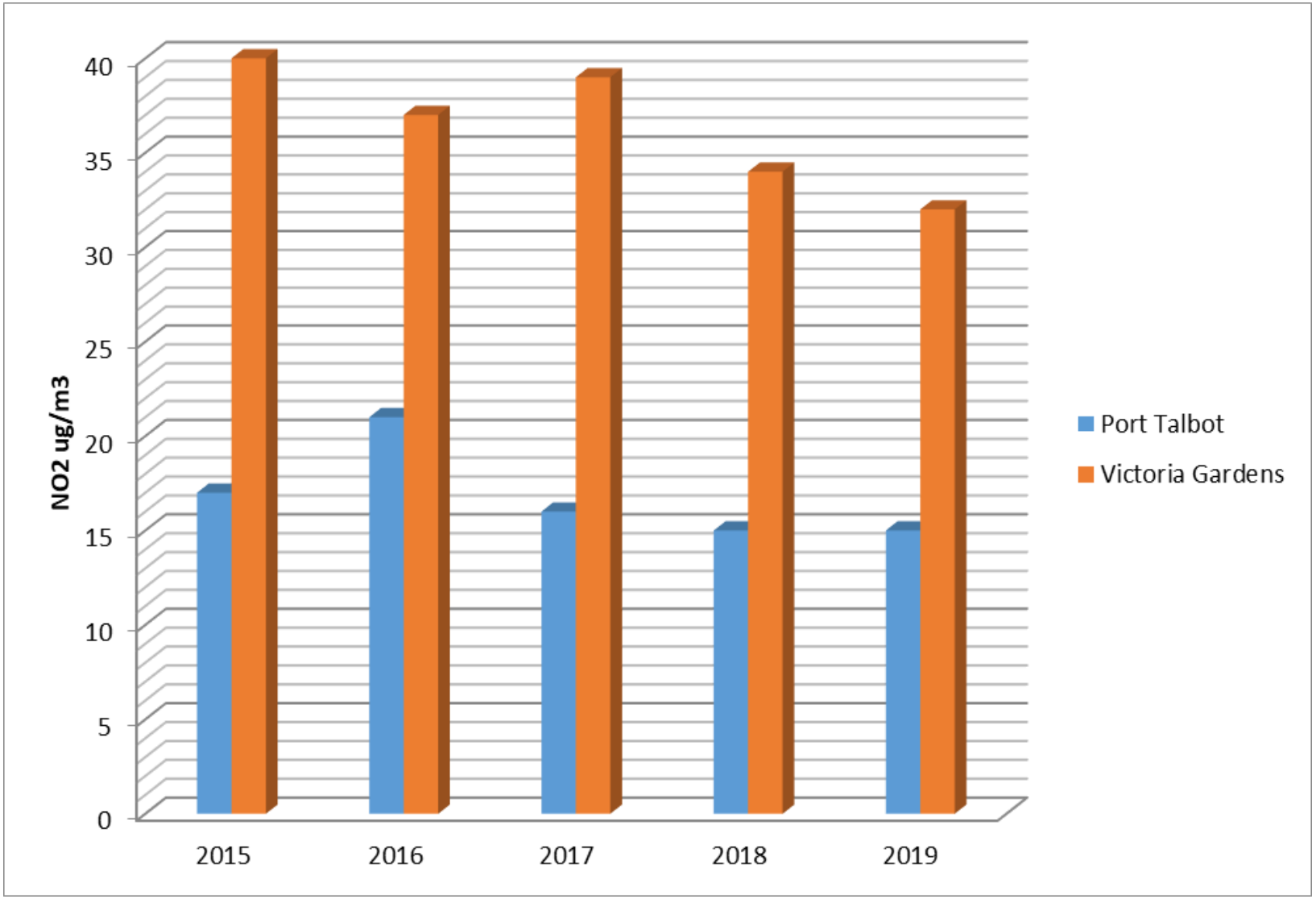


Figure 2.10 – Trends in Annual Mean NO_2 Concentrations – diffusion tubes

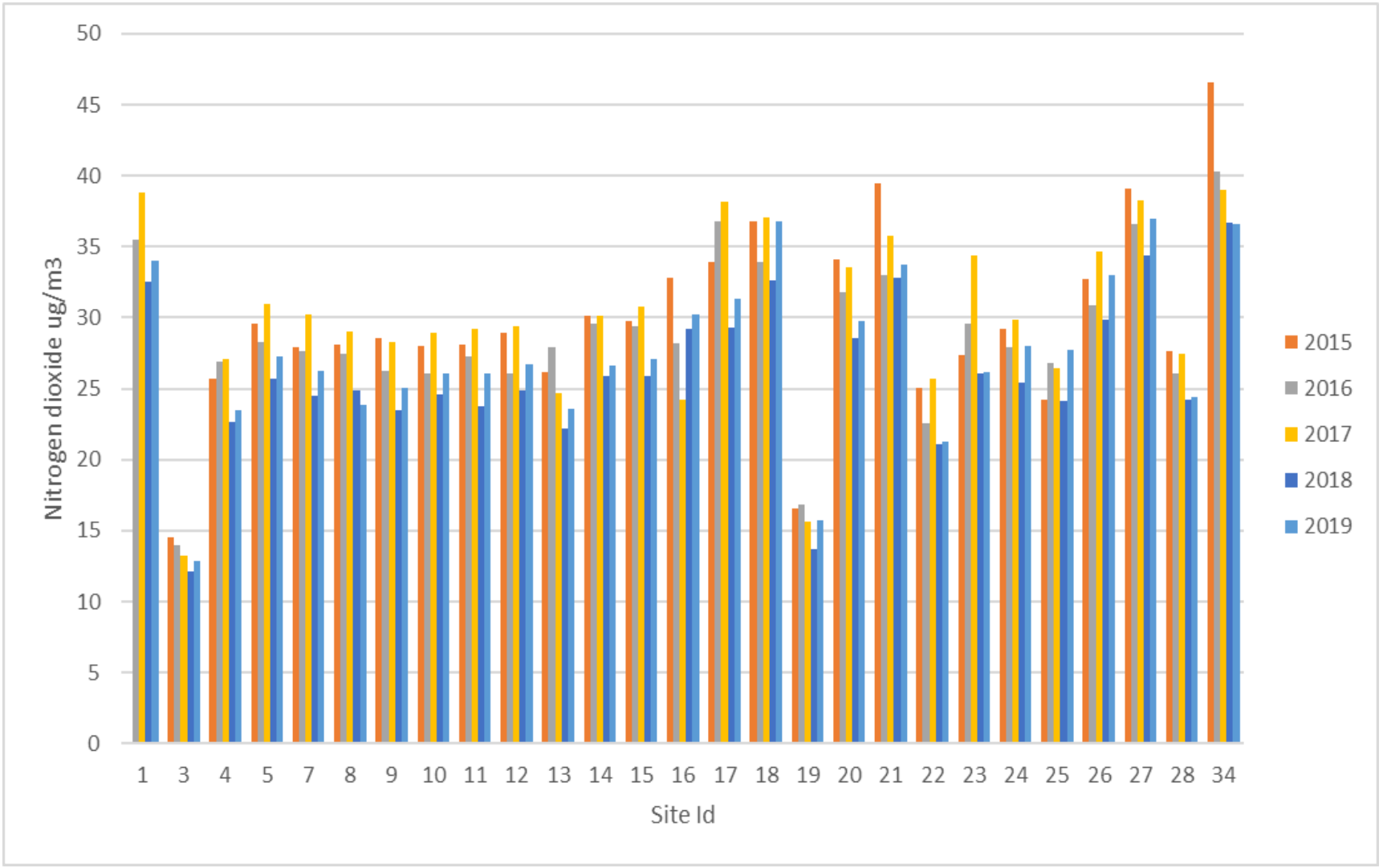


Table 2.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2015	2016	2017	2018	2019
PT2	Industrial	Automatic	95	95	0	0	0	0	0
VG2	Roadside	Automatic	58	58	0	0	0	0	0 (92)

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table 2.5 – Annual Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration (µg/m^3) (3)				
				2015	2016	2017	2018	2019
PT2	Industrial	95.0	95.0	27	22	23	23	21
LW1	Industrial	88.6	88.6	24	21	21	21	20
PS2	Industrial	89.1	89.1	n/a	23	25	23	20
TW1	Industrial	96.2	96.2	26	24	21	21	21
DS1	Industrial	73.7	73.7	20	18	21	-	22

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

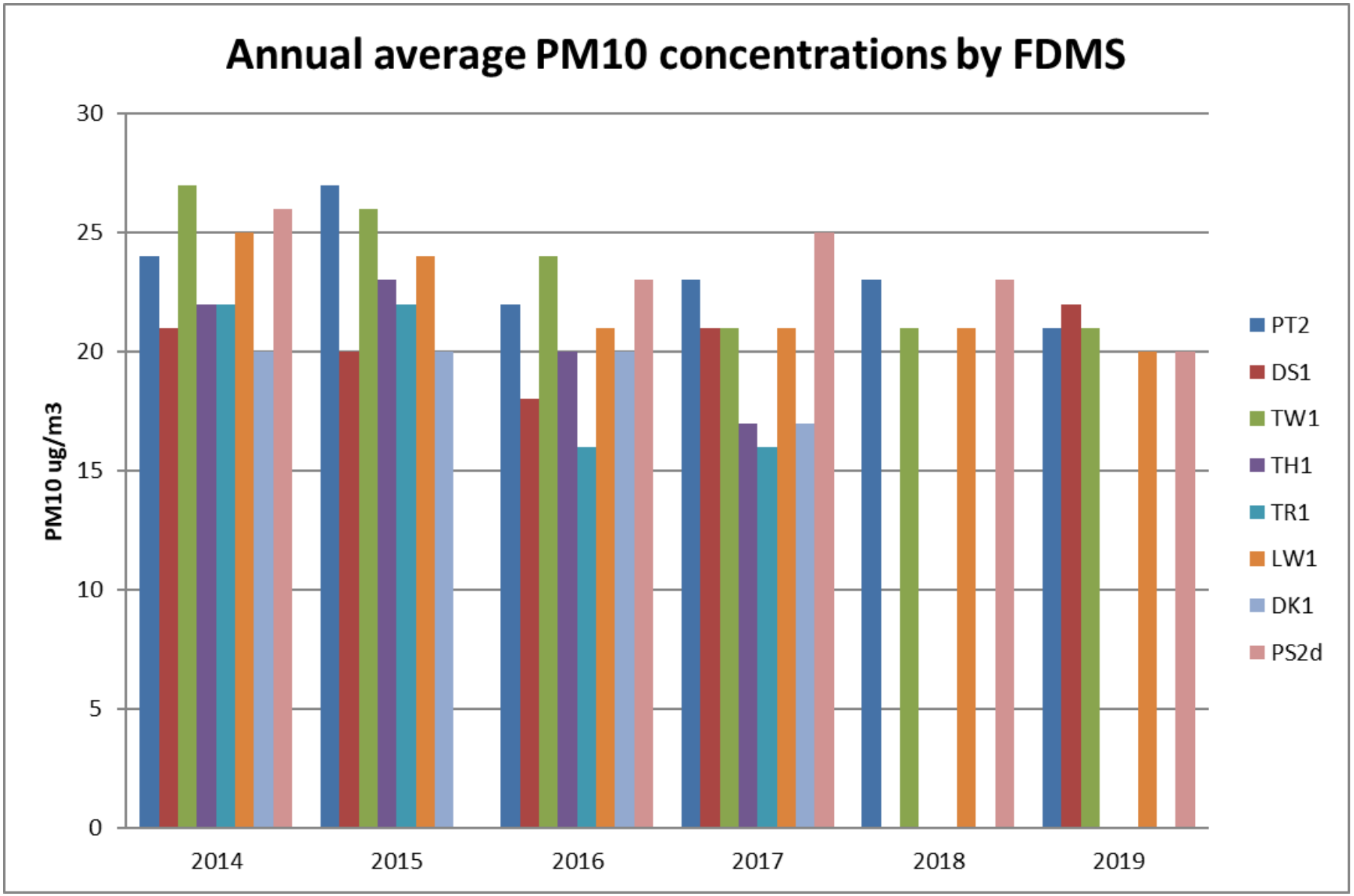


Table 2.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m³ (3)				
				2015	2016	2017	2018	2019
PT2	Industrial	95	95	28	8	17	11	12
LW1	Industrial	89	89	15	9	16	9	9
PS2	Industrial	89	89	n/a	9	18	12	8
TW1	Industrial	96	96	10	4	3	9	10
DS1	Industrial	74	74	5	0	2	n/a	2 (31)

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(4) Measurements were carried out using TEOM-FDMS instruments.

Table 2.7 – 24-Hour Mean Non-Automatic PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m³ (3)
				2018
PT2Pd	Industrial	90	90	26

Figure 2.12 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

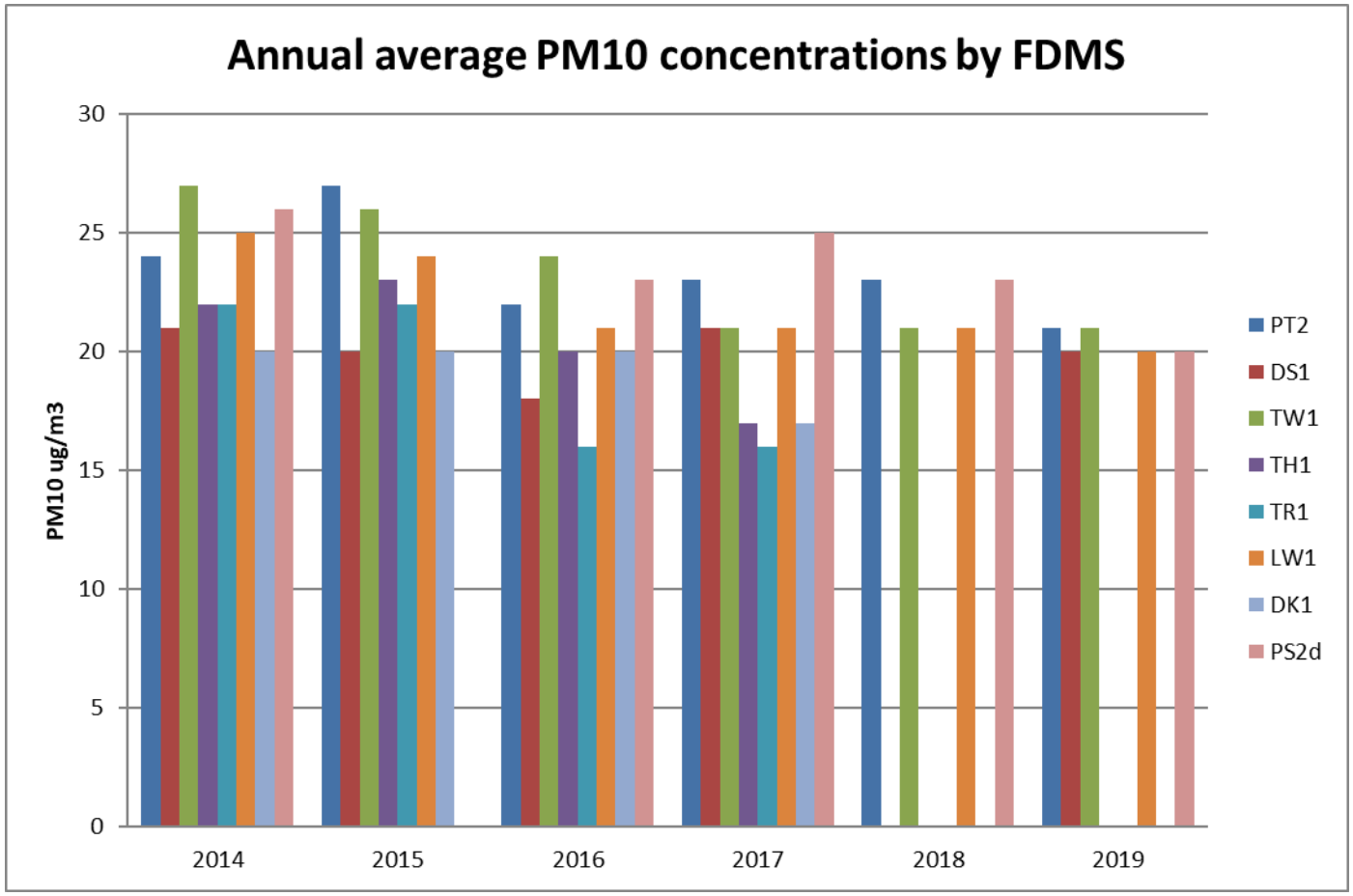


Table 2.8 – $PM_{2.5}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	$PM_{2.5}$ Annual Mean Concentration ($\mu g/m^3$) (3)				
				2015	2016	2017	2018	2019
PT2	Industrial	90	90	10	9	10	11	11
PS2	Industrial	93	93	10	10	10	9	9

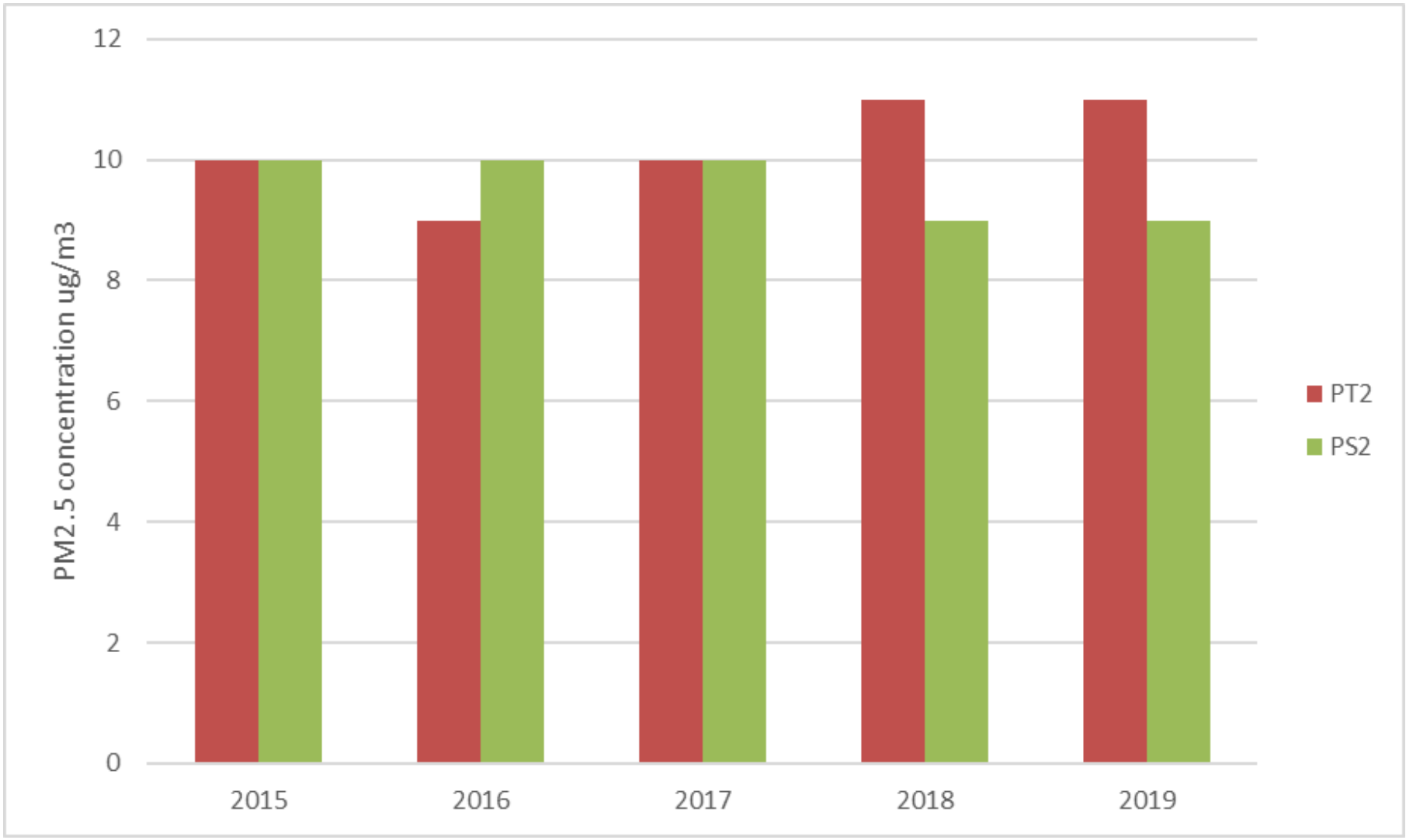
Notes:

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure 2.13 – Trends in Annual Mean $PM_{2.5}$ Concentrations



2.2 Comparison of 2019 Monitoring Results with Previous Years and the Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

The annual mean objective for NO_2 was not exceeded at any site, whether measurements were conducted using diffusion tubes or continuous analysers.

There were no continuous measurement sites where the hourly average concentration exceeded 200 µg/m^3. Data capture was 95% at Fire Station and 58% at Victoria Gardens. Therefore the 99.8 percentile has not been included for the Fire Station but has been for Victoria Gardens. The 99.8 percentile was 92 in this instance, showing that short term air quality objective was not likely to have been exceeded at this site either.

Diffusion tube data has been subject to bias adjustment and the calculation methodology is included in Appendix C. A local bias adjustment of 0.75 was used.

The full dataset is included as Appendix A. Annualisation was necessary in two instances.

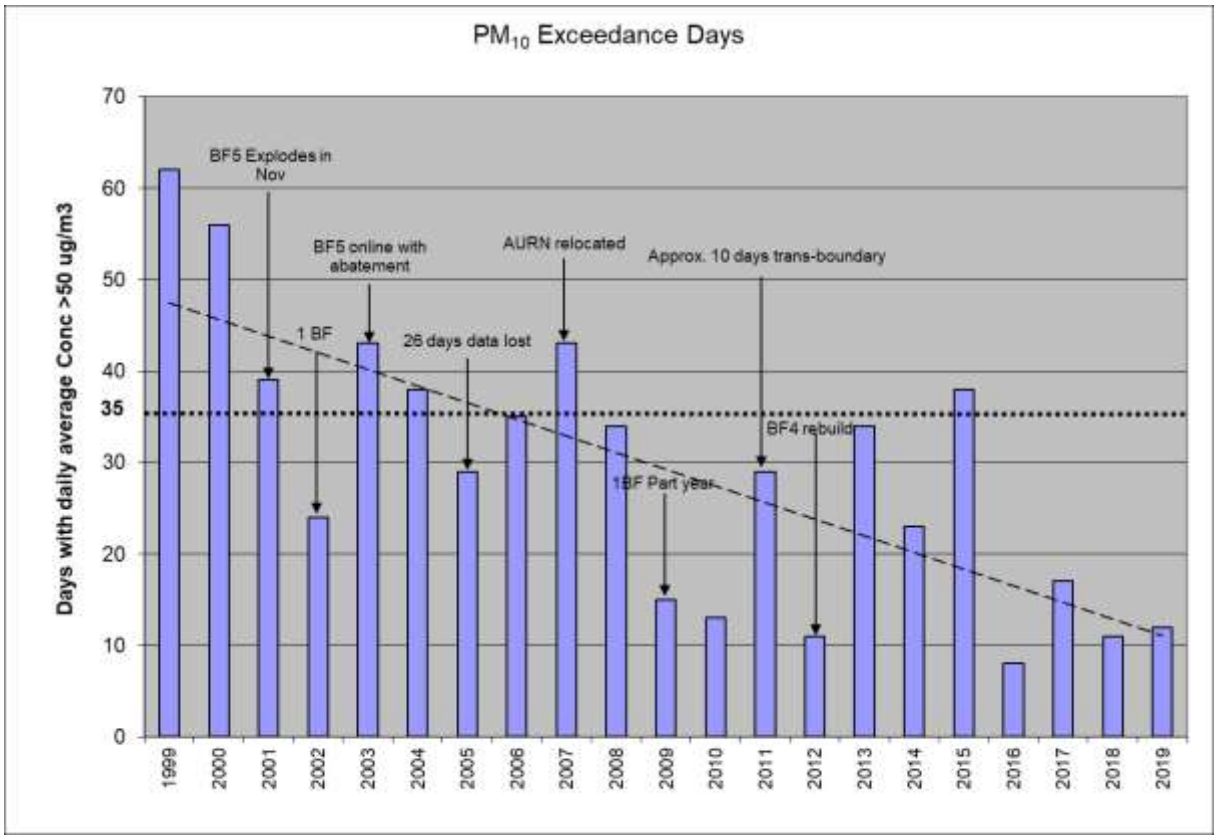
There were no exceedances of air quality objectives for NO_2.

The traffic-dominated continuous monitoring site at Victoria Gardens continues to show a trend towards decreasing concentrations (Figure 2.9).

2.2.2 Particulate Matter (PM_{10})

There were no exceedances of the short or long term averaged air quality objectives. Data capture rates for PM_{10} monitors were above the 90% target for Little Warren (89%), Prince Street (89%) and Dyffryn School (74%). In the latter case the low data capture rate was due to long-standing instrument problems which have now been resolved. All sites are representative of public exposure.

Figure 2.14 – PM_{10} exceedance days with background information



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 was 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%.

The number of exceedances decreased in 2018 (11) according to the FDMS measurements, but the Partisol recorded 21 exceedance days for the same period. In neither case was the short-term air quality objective breached.

There were 12 PM_{10} exceedances in 2019 according to the FDMS measurements, but the Partisol recorded 26 exceedance days for the same period. In neither case was the short-term air quality objective breached.

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 2019 as measured at Port Talbot Fire Station, where the annual data capture rate was 99%. Neither were there any exceedances of the 350 µg/m^3 (maximum 111 µg/m^3) 1-hour mean or the 125 µg/m^3 daily mean (maximum 24 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 2.9 – Results of Automatic Monitoring for SO_2: Comparison with Objectives

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2019 % [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	99	99	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 Carbon monoxide

There were no exceedances of the 8-hour average of 10 mg/m^3 (maximum 3.6 mg/m^3) during 2019. 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 2.10 - Results of Automatic Monitoring of carbon monoxide

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2019 %[b]	Number of Exceedances (percentile in bracket μg/m^3)[c]
					8 hour running mean > 10 mg/m^3
PT2	Urban industrial	Y	99	99	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
[c] if data capture is less than 90%, include the relevant percentile in brackets

2.2.5 Benzene

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

2.2.6 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 2019 show that the annual average concentration of lead was 6.7 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. The sampler failed on 18th September 2019 and could not be replaced until the new year. The last valid sample was on 21st August. The annual average concentration for 2019 cannot be quoted due to the low data capture rate.

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 7.7, 6.2 and 6.6 ng/m^3 respectively, all of which easily comply with the Air Quality Objective.

2.3 Other Pollutants Monitored

2.3.1 Particulate Matter ($PM_{2.5}$)

The EU Target value (25 µg/m^3) was not exceeded at either the Prince Street (9 mg/m^3) or Port Talbot Fire Station (11 mg/m^3) sites. The WHO Guideline of 10 µg/m^3 was exceeded at Port Talbot Fire Station. Both sites are representative of public exposure.

2.3.2 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_2 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.

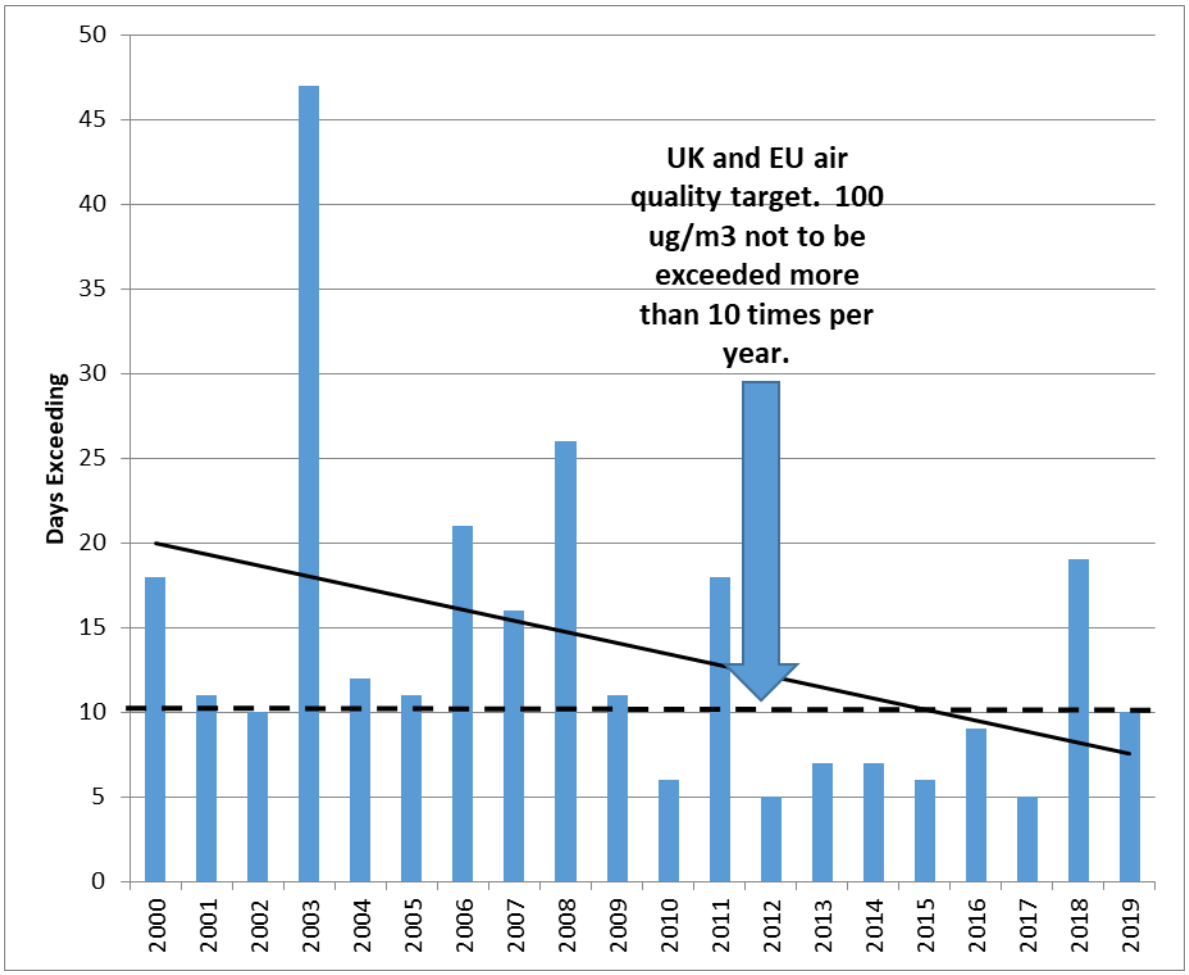
No statutory Air Quality Objective level for Ozone has been set, owing to the potential for trans-boundary sources. However, there is a recommended Air Quality objective for ozone of 100 µg/m^3, measured as a rolling 8 hour average. This was breached on 74 occasions on a total of 10 days at the Fire Station. This is a significant improvement on the previous year.

However, 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 2.11 – Annual ozone exceedances 2000 – 2019

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
2018	101	19
2019	74	10

Figure 2.15 - Days of ozone exceedances of the UK recommended AQO since 2000



2.3.3 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.

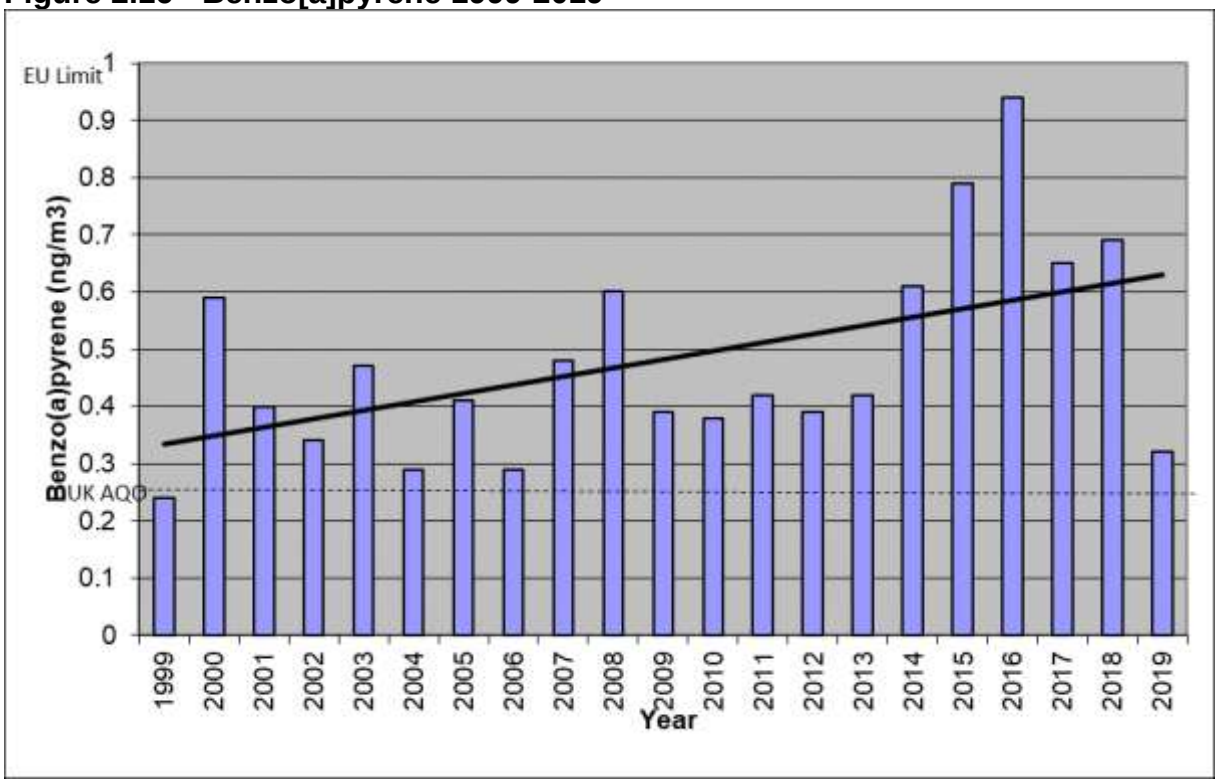
Table 2.12 – Benzo[a]pyrene annual averages 1999-2019

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
0.69	2018
0.32	2019

The results are shown graphically in figure 2.16 below. The B[a]P concentration at Port Talbot frequently exceeds the Air Quality Objective of 0.25 ng/m^3, but has never exceeded the EU target value of 1 ng/m^3 thus far. The 2019 result is less than half that measured in the previous year. This represents a significant improvement on recent years and is the best result since 2006. The long term trend is still currently upwards.

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 2.16 - Benzo[a]pyrene 1999-2019



2.3.4 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

2.3.4.1 Pontardawe Leisure Centre

The annual mean nickel concentration found in 2019 was 15.7 ng/m^3, which complies the Target Value to be met by the end of 2012.

The annual mean concentrations of arsenic and cadmium have been found to be 0.66 ng/m^3 and 0.34 ng/m^3 respectively. These concentrations represent

approximately 11% and 6.8% 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.

Data capture was 97.9% for the year.

2.3.4.2 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 2019 (1.1 ng/m^3) was 5.5% the EU Target of 20 ng/m^3.

The annual mean concentrations of arsenic and cadmium have been found to be 0.72 ng/m^3 and 0.89 ng/m^3 respectively. These concentrations represent approximately 12.0% and 17.8% 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 2662 ng/m^3. Whilst iron does not represent a risk in respect of toxicity, this concentration comprises approximately 10% of the PM_{10} measured in Port Talbot and highlights the influence of the Port Talbot steelworks. The corresponding figure for 2018 was 12% iron.

2.3.4.3 Pontardawe Tawe Terrace

This 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 2019 was 34.8 ng/m^3 which is 174% of the Target value. This is an improvement on the figure recorded in 2018 (56.7 ng/m3).

The Council as regulator of Wall Colmonoy, continues to place the emphasis on maintenance checks in order to bring ambient nickel levels in compliance with the Target.

The annual mean concentrations of arsenic and cadmium have been found to be 0.71 ng/m^3 and 0.49 ng/m^3 respectively. These concentrations represent approximately 11.8% and 9.8% of their EU target values of 6 and 5 ng/m^3 respectively.

2.3.4.4 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 2019 was 5.5 ng/m^3 which is 27.5% of the Air Quality Objective.

The annual mean concentrations of arsenic and cadmium have been found to be 0.82 ng/m^3 and 0.28 ng/m^3 respectively. These concentrations represent approximately 13.7% and 5.6% of their EU target values of 6 and 5 ng/m^3 respectively.

2.3.4.5 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 sampler failed on 18th September 2019 and could not be replaced until the new year. The last valid sample was on 21st August. Annual average concentrations cannot be quoted for this site as the data capture rate is too low.

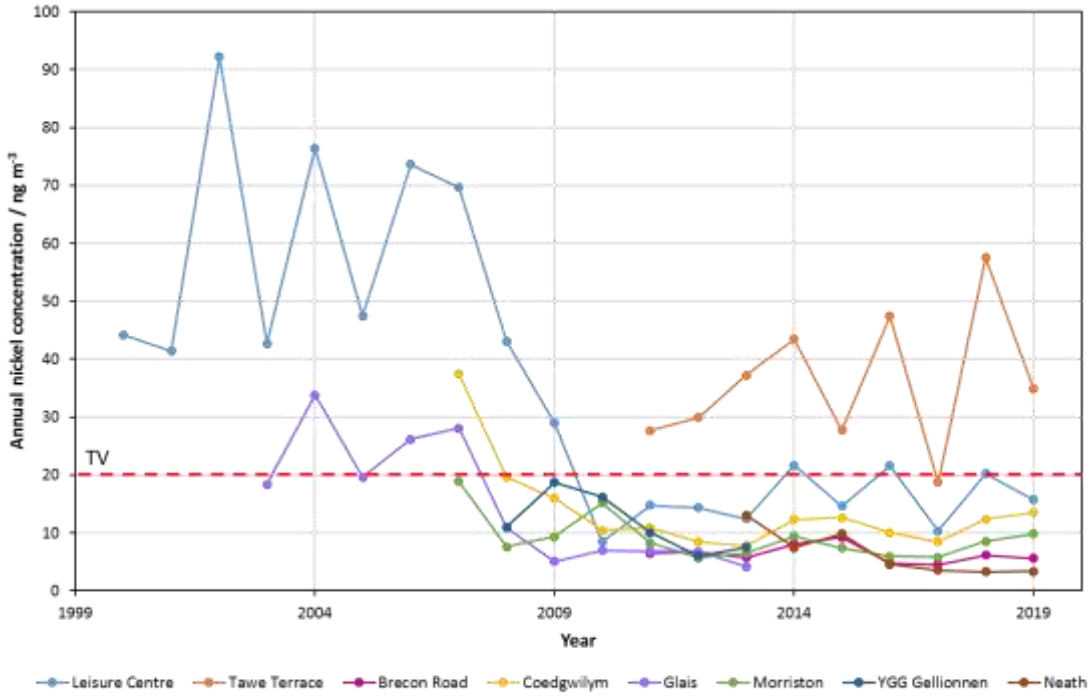
The metals results for 2019 are summarised in Table 2.13 below.

Table 2.13 - Annual average metal concentrations during 2019

Element	2019 annual mean concentration (ng/m^3)				
	Port Talbot Fire Station	Pontardawe Brecon Road	Pontardawe Leisure Centre	Pontardawe Tawe Terrace	Neath Milland Road
As	0.72	0.82	0.66	0.72	N/A
Cd	0.89	0.28	0.34	0.49	N/A
Ce	-	-	0.13	-	-
Co	0.19	0.45	1.30	3.38	N/A
Cr	4.79	2.01	3.76	8.16	N/A
Cu	18.2	4.40	3.84	5.98	N/A
Fe	2662	199	189	225	N/A
Hg*	-	-	-	-	-
Mn		3.61	5.04	6.32	N/A
Ni	1.1	5.5	15.7	34.3	N/A
Pb	7.68	6.17	6.70	6.64	N/A
Sb	-	-	1.15	-	-
Sc	-	-	0.06	-	-
Se	0.72	0.47	0.52	0.56	N/A
Zn	43.9	12.7	0.79	14.5	N/A
V	3.45	0.70	12.3	0.77	N/A

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.

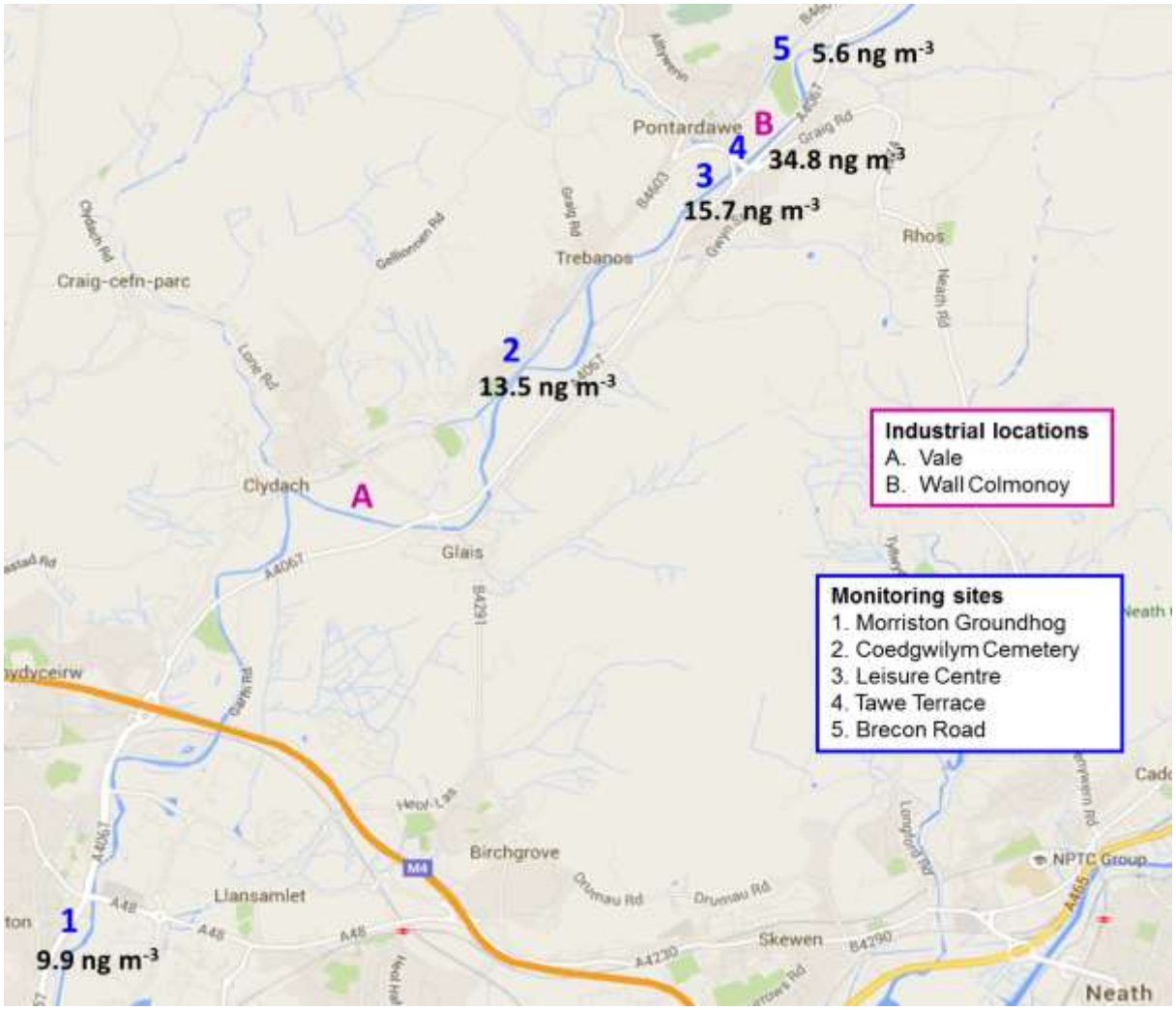
Figure 2.17 - Nickel trends 2000 – 2019



Note: Graph produced by Richard Brown of NPL.

Figure 2.18 shows the location of all of these monitoring sites and the annual average concentrations.

Figure 2.18 Location of nickel monitoring stations in the Swansea Valley



Note: Graph produced by Richard Brown of NPL.

2.3.5 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 2019, sampling of this kind took place at 7 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
- Little Warren, Port Talbot.
- Tairgwaith, Amman Valley
- Dyffryn School, Bertha Road, Port Talbot.

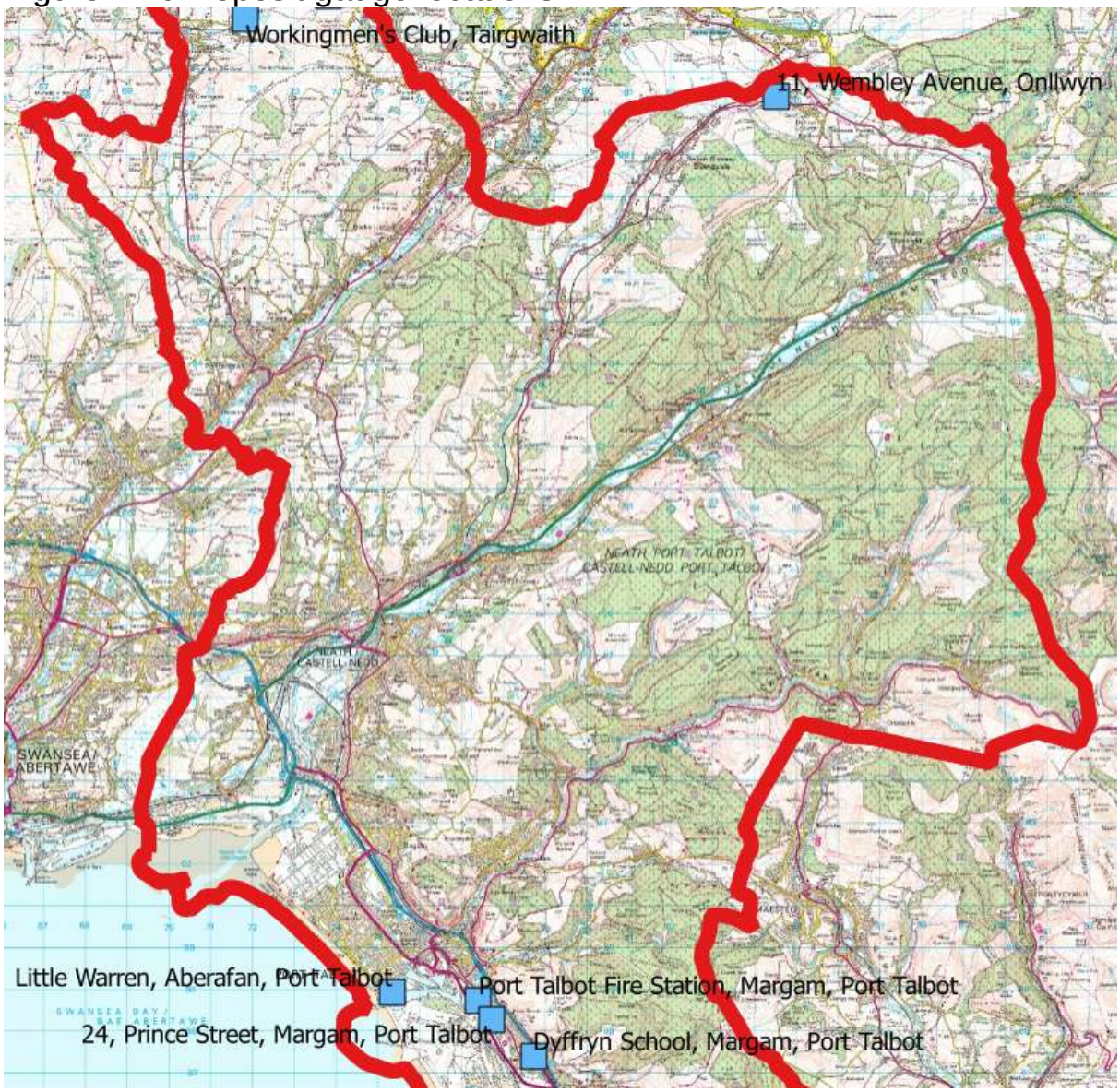
The site at Ochr y Waun, Cwmllynfell was discontinued in 2019 due to repeated vandalism of the monitor, which made it impossible to continue. An alternative location was considered but found to be unsatisfactory.

Pie charts and time series graphs are presented for each site for 2019 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.

The location of the remaining gauges is shown below.

Figure 2.19 Deposit gauge locations



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 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 2.19. Figures E4.1 to E4.14 comprise pairs of time series and pie charts for each

[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 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.

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 E4.15 shows the average fallout rate for each site during 2019 in a bar chart, and Table E4.1 holds the data for this chart. The sites are ranked in a table and graphically according to the average fallout rate. Figure E4.16 and Table 4.2 show how fallout rates have varied in the long term.

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

Table 2.14 - Fallout categories as defined by NPT

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

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

Results by site

2.3.5.1 Prince Street, Port Talbot (Figs. E4.1 & E4.2) High -37%

The "nuisance limit" (200 mg/m^2/day) was not exceeded during 2019 and no days were within 10% of the "nuisance limit". During the previous year there were also no exceedances but 61 days within 10%. In 2019, the maximum fallout rate was 152 mg/m^2/day and the average 87 mg/m^2/day, the corresponding values for 2018 were 346 and 138 mg/m^2/day respectively. The average fallout rate fell by 37%, which was mainly due to a decrease in coal, dirt and iron rich material.

2.3.5.2 Port Talbot Fire Station (Figs. E4.3 & E4.4) High -4%

The "nuisance limit" was not exceeded during 2019 but there were 77 days within 10% of the "nuisance limit". The corresponding figures for 2018 were not days exceeding the "nuisance limit" and 85 days within 10%. The maximum fallout rate was 297 mg/m^2/day and the average 132 mg/m^2/day, and the corresponding values for 2018 were 311 and 137 mg/m^2/day respectively. There was a 4% decrease in fallout rates compared to the previous year.

2.3.5.3 **Tairgwaith** (Figs. E4.5 & E4.6) Low -23%

The "nuisance limit" was not exceeded and no samples reached within 10% of 200 mg/m^2/day. The maximum fallout rate was 43 mg/m^2/day and the average 20 mg/m^2/day, the corresponding values for 2018 were 63 and 26 mg/m2/day respectively. There was 23% decrease in fallout rates compared to the previous year.

2.3.5.4 **Wembley Avenue, Onllwyn** (Figs. E4.7 & E4.8) Low -31%

The "nuisance limit" was not exceeded and there were no days within 10% of 200 mg/m^2/day. The maximum fallout rate was 89 mg/m^2/day and the average 37 mg/m^2/day, the corresponding values for 2018 were 149 and 54 mg/m^2/day respectively. There was a decrease of 31%, which was mainly due to a reduction increases in coal fallout.

2.3.5.5 **Little Warren, Port Talbot** (Figs. E4.9 & E4.10) Moderate -2%

The "nuisance limit" was not exceeded in 2019 and there were no days within 10% of 200 mg/m^2/day. The maximum fallout rate was 97 mg/m^2/day and the average 52 mg/m^2/day, the corresponding values for 2018 were 102 and 53 mg/m^2/day respectively. There was a 2% decrease in fallout rates compared to the previous year.

2.3.5.6 **Dyffryn School, Port Talbot** (Figs. E4.11 & E4.12) Moderate -28%

The "nuisance limit" was not exceeded during 2019 but there were 27 days within 10% of the "nuisance limit". The maximum fallout rate was 256 mg/m^2/day and the average 74 mg/m^2/day, and the corresponding values for 2018 were 397 and 103

mg/m^2/day respectively. There was a 28% decrease in fallout rates compared to the previous year, which was mainly due to more coal and dirt.

2.3.5.7 **Summary**

The Port Talbot sites at Fire Station, Prince Street, and Dyffryn School remain the top ranked in terms of average fallout rate. However, fallout levels at Prince Street were substantially down to levels last measured in 2004. Oddly, these measurements were not mirrored at Port Talbot Fire Station, which is sited quite close to the Prince Street site.

2.3 Summary of Compliance with AQS Objectives as of 2019

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 2019, the AQMA should remain.

Concentrations outside of the AQMA are all below the air quality Objectives, therefore no further action is required.

3. New Local Developments

3.1 Road Traffic Sources (and Other Transport)

Some changes to road traffic sources have been made since the last assessment, but the effect of these has been mainly to improve traffic flow. It is not considered that these changes will have had adverse effects on air pollution.

- Narrow congested streets with residential properties close to the kerb – No change.
- Busy streets where people may spend one hour or more close to traffic – No change.
- Roads with a high flow of buses and/or HGVs - 50mph implemented on the M4 between junctions 40 & 42. Traffic signals improved on main junctions within Neath and Briton Ferry to install MESH, MOVA and late bus technology - to aid the flow of traffic and help buses keep to their scheduled times.
- Junctions - Traffic signals improved on main junctions within Neath and Briton Ferry to install MESH, MOVA and late bus technology - to aid the flow of traffic and help buses keep to their scheduled times. This includes the junction at the bottom of Cimla hill.
- New roads constructed or proposed since the last Assessment – No change.
- Roads with significantly changed traffic flows - Traffic signals improved on main junctions within Neath and Briton Ferry to install MESH, MOVA and late bus technology - to aid the flow of traffic and help buses keep to their scheduled times.
- Bus or coach stations – No change.
- Airports / diesel or steam trains / ports & Shipping – No change.
- Major roadworks / disruptions – None.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

There have been none of the following since the last assessment:

- New or proposed industrial installations for which an air quality assessment has been carried out.
- Existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- New or significantly changed installations with no previous air quality assessment.
- New major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

There have been no new of the following which are new since the last report:

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

There have been none of the following since the last report:

- Biomass combustion plant – individual installations. The Margam Green Energy biomass combustion plant did not commence operation until 2019.
- Areas where the combined impact of several biomass combustion sources may be relevant. Dispersion modelling was carried out to assess the combined impact of both biomass combustion plants. No air quality objectives were expected to be breached.
- Areas where domestic solid fuel burning may be relevant.
- Combined Heat and Power (CHP) plant.

3.3 Planning Applications

24 planning applications were referred for comments on grounds of air quality. The majority were considered to have negligible impact. Nearly all of these applications related to demolition and/or construction activities, which were dealt with in accordance with the IAQM guidance. Details regarding other sites are shown below.

Application number P2019/5613 – Land adjacent to Towers Hotel

Application number P2019/5184 – Old people's home demolition

Application number P2019/5455 – Global Centre for Rail Excellence

Application number P2019/5264 – Demolition at Water Street, Port Talbot

Application number P2019/5184 – Demolition of Glyn Dulais old people's home

Application number P2019/5304 – Aldi Neath Abbey

Application number P2019/5283 – Cymer Afan Comprehensive School

Application number P2019/5288 – Cefn Saeson School

Application number P2019/5237 – Plaza Cinema Port Talbot

Application number P2019/5168 – Flats 1-4 Waun Las Waunceirch

Application number P2019/5028 – Cefn Saeson School

Application number P2019/5148 – Land to east of Amazon

Application number P2019/5071 – UK Power reserve

Change to existing planning permission. Air quality dispersion modelling carried out.

Application number P2019/5082 – Biomass boiler at old Metal Box site

Application number P2019/5419 – YGG Ystalyfera

Application number P2019/0311 – Evelyn Terrace

Application number P2019/0199 – Parc y Dderwen

Application number P2019/1010 – Park Street, Glyncorrwg

Application number P2019/0077 – Gilfach Quarry – Scoping opinion

Application number P2019/0304 – Baglan Solar Park

Application number P2019/0040 – Cefn Saeson School

Application number P2018/1036 – UK Power reserve

3.4 Other Sources

No PM_{10} exceedance days were measured at any of the four monitoring sites around 5th November 2019. Consequently there was no evidence of adverse air quality arising from fireworks displays. Neither was there any evidence to suggest that bonfires, domestic wood burning or other localised pollution incidents gave rise to a significant pollution incident.

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

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

- **Road traffic sources**
- **Other transport sources**

- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4. Policies and Strategies Affecting Airborne Pollution

4.1 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.

4.2 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.

4.3 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=1461

4.4 Active Travel Plans and Strategies

The Council's Active Travel information can be found on the following web page:

https://www.npt.gov.uk/6489

This includes the existing route map (ERM) and the Integrated Network Map (INM).

4.5 Local Authorities Well-being Objectives

The Environmental Health team address the wider determinants of health, which is the basis of the Act, and as such deals with a number of issues either directly or indirectly that contribute to the goals set out in the Well-being of Future Generations Act. For example: accumulations of rubbish and pest control; air quality strategy, monitoring and regulation; commercial and industrial pollution control; contaminated land strategy and regulation; dampness in housing; derelict houses and unsightly land; domestic air pollution control (garden fires/bonfires); health and safety regulation in Local Authority enforced businesses; health and safety regulation in houses in multiple occupation (HMOs); housing health and safety rating system in private rented accommodation; illegal eviction and harassment; industrial and commercial noise; neighbour nuisance and antisocial behaviour; planning consultations; public health protection and health promotion (sunbeds, tattooing etc.); smoking ban and smoke free legislation; water quality.

4.6 Green Infrastructure (GI) Plans and Strategies

The Council is taking a more strategic approach to the management, enhancement and creation of Green Infrastructure, for the benefit of people and wildlife. Funding was secured from WG from the GI Capital Fund in 2018 to develop GI opportunity and demand maps, and deliver a demonstration project, whilst funding for further implementation was secured as part of the ENRaW (Enabling Natural Resources and Well-being) WG fund for 2019/20. As part of this grant, over 6000 saplings were

planted and 160 large standards were planted throughout the county borough, in schools and urban locations, including the Port Talbot area.

Further funding is being sought from a second ENRaW application, for the period from April 2020, until March, 2023. An outcome is awaited from WG, and if successful, would provide the opportunity to further deliver GI intervention in Neath Port Talbot.

4.7 Climate Change Strategies

The Council has endorsed a Decarbonisation and Renewable Energy Strategy, a draft version of which is shown below.

https://democracy.npt.gov.uk/documents/s52425/App%201%20Decarbonisation%20Strategy.pdf

5. Conclusions and Proposed Actions

5.1 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 have continued the trend toward decreasing concentrations.

There were no exceedances of air quality objectives for any other LAQM pollutants.

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.

The next actions to be taken will be to submit a LAQM Progress report for the calendar year of 2020.

5.2 Conclusions relating to New Local Developments

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

5.3 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. 2019 was a significantly improved compared to the previous year. The long-term trend is downwards.

The concentration of polyaromatic hydrocarbons at Port Talbot continues to exceed the Air Quality Objective of 0.25 ng/m^3, but it has never exceeded the EU target value of 1 ng/m^3. The 2019 annual average concentration was less than half that measured in 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 and Port Talbot with the exception of Tawe Terrace. The result at Tawe Terrace was much improved on the previous year, but fell short of the 2017 figure which complied with the Target. The Council will continue with enhanced regulation of Wall Colmonoy with the emphasis being on maintenance procedures.

None of the 24 planning applications considered on grounds of air quality were considered to pose a risk to compliance with air quality objectives.

5.4 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 2020.

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix E: Deposit gauge graphs

Appendix A: Monthly Diffusion Tube Monitoring Results

Table A.1 – Full Monthly Diffusion Tube Results for 2019

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.75) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
1	1	57.5	48.3	40.1	40.7	43.9	38.8	42.0	39.7	43.2	47.4	51.2	52.0	45.4	34.0
3	3	26.2	18.9	20.1	17.2	15.9	12.6	13.6	12.4	14.7	16.4	24.6	14.5	17.3	12.9
4	4	36.3	37.8	24.1	34.6	29.4	26.9	26.4	21.4	28.5	34.2	43.4	33.2	31.3	23.5
5	5	56.5	38.4	37.1	32.3	31.3	26.9	28.7	28.5	33.0	37.1	44.1	42.8	36.4	27.3
7	7	42.8	38.2	37.8	36.5	32.9	28.8	28.8	29.4	32.3	35.5	40.7	37.1	35.1	26.3
8	8	44.5	38.4	39.0	35.9	32.3	26.9							36.2	23.9
9	9	43.5	36.3	36.1	32.5	29.6	28.1	26.7	27.7	30.9	35.9	38.6	35.5	33.5	25.1
10	10	50.2	50.2	40.1	39.0	36.9	31.9	29.0						39.6	26.1
11	11	35.0	40.5	40.5	35.1	32.3	29.0	28.1	28.5	33.2	36.3	43.5	35.1	34.8	26.1
12	12	52.9	38.4	41.4	29.0	30.8	26.2	29.0	26.7	30.6	36.9	44.9	40.9	35.6	26.7
13	13	47.6	31.3	36.3	26.9	27.9	23.7	26.2	22.7	29.2	32.1	40.5	33.6	31.5	23.6
14	14	51.2	37.4	36.5	28.3	30.0	26.4	30.0	27.9	32.1	38.4	44.5	42.6	35.4	26.6
15	15	52.1	39.7	39.5	30.6	32.3	26.9	29.8	27.5	32.9	36.1	44.9	40.7	36.1	27.1
16	16	53.7	43.5	33.6	35.7	36.9	33.2	36.7	37.4	39.2	41.1	45.5	48.1	40.4	30.3
17	17	59.0	44.9	35.9	36.9	35.7	33.6	34.8	33.6	38.0	46.8	51.0	50.0	41.7	31.3
18	18	49.9	56.0	49.3	50.8	46.0	43.9	43.4	43.2	46.8	47.8	49.3	61.9	49.0	36.8
19	19	32.3	24.3	20.8	19.1	16.8	13.9	15.9	17.4	18.0	21.6	26.5	24.6	20.9	15.7
20	20	53.7	45.5	34.0	34.4	36.1	32.7	37.2	37.1	37.4	40.7	42.8	46.0	39.8	29.8

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.75) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
21	21	61.5	33.0	40.9	41.8	41.8	38.6	40.1	40.1	43.7	46.0	55.0	57.1	45.0	33.7
22	22	37.6	35.0	30.8	27.3	22.5	22.5	24.3	21.2	26.7			35.7	28.4	21.3
23	23	45.1	38.6	26.9	39.0	30.6	27.7	28.1	24.4	31.5	37.6	47.8	41.3	34.9	26.2
24	24	48.5	39.9	42.0	29.8	33.8	30.0	30.6	32.9	35.1	39.7	42.0	43.9	37.4	28.0
25	25	34.4	45.6	36.7	47.0	36.1	27.7	31.3	27.5	32.1	46.2		42.2	37.0	27.7
26	26	51.8	43.4	47.6	46.6	39.5	38.0	39.7	39.3	42.0	44.9	47.9	47.0	44.0	33.0
27	27	63.0	57.1	49.7	45.5	47.4	40.5	42.4	41.3	46.8	51.2	56.9	50.4	49.3	37.0
28	28	45.8	42.2	38.4	30.2	29.6	31.5	19.5	29.0	26.0	26.4	32.9	38.8	32.5	24.4
34	34	68.8	54.1	45.6	49.7	45.6	38.8	44.5	43.0	46.4	49.7	46.8	52.5	48.8	36.6

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix B: A Summary of Local Air Quality Management

Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995 and associated government guidance. 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 being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans should then be reviewed and updated where necessary at least every 5 years.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

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 B.1.

The table shows the objectives in units of micrograms per cubic metre µg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.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	
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

NO_2 diffusion tubes are sourced from the Environmental Scientifics Group Socotec and are prepared using 50% TEA in acetone. Neath Port Talbot typically uses a a bias adjustment factor based upon the average of two locations.

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 C1 – Port Talbot Fire Station - Bias adjustment spreadsheet –

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
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	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	09/01/2019	06/02/2019	35.8	30.0	31.6	32	3.0	9	7.4	24.3	96	Good	Good
2	06/02/2019	07/03/2019	27.6	28.4	17.5	25	6.1	24.8	15.1	19.2	93	Poor Precision	Good
3	07/03/2019	03/04/2019	21.0	20.7	21.3	21	0.3	1	0.7	15.1	100	Good	Good
4	03/04/2019	01/05/2919	19.6	19.3	18.9	19	0.4	2	0.9	15.1	100	Good	Good
5	01/05/2919	05/06/2019	17.3	16.6	16.7	17	0.4	2	0.9	15	100	Good	Good
6	05/06/2019	03/07/2019	13.7	14.4	13.9	14	0.4	3	0.9	13	100	Good	Good
7	03/07/2019	07/08/2019	15.9	15.7	16.6	16	0.5	3	1.2	11	100	Good	Good
8	07/08/2019	04/09/2019	15.9	18.3	18.1	17	1.3	8	3.3	10	94	Good	Good
9	04/09/2019	03/10/2019	18.2	18.1	17.9	18	0.2	1	0.4	11	100	Good	Good
10	03/10/2019	06/11/2019	22.1	22.3	21.0	22	0.7	3	1.7	11	80	Good	Good
11	06/11/2019	05/12/2019	28.9	24.5		27	3.1	12	28.0	14	100	Good	Good
12	05/12/2019	07/01/2020	26.5	22.8		25	2.6	11	23.5	18.6	100	Good	Good
13													
											Overall survey -->	Good precision	Good Overall DC

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

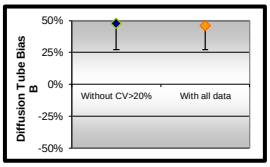
Site Name/ ID:	Port Talbot Fire Station 2019

Precision: 11 out of 12 periods have a CV smaller than 20%

(Check average CV & DC from Accuracy calculations)

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	0.69 (0.61 - 0.81)
Bias B	44% (24% - 64%)
Diffusion Tubes Mean:	21 µgm^{-3}
Mean CV (Precision):	5
Automatic Mean:	14 µgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	14 (13 - 17) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data	
Bias factor A	0.7 (0.62 - 0.81)
Bias B	42% (24% - 61%)
Diffusion Tubes Mean:	21 µgm^{-3}
Mean CV (Precision):	7
Automatic Mean:	15 µgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	15 (13 - 17) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Figure C2– Cimla Road - Bias adjustment spreadsheet –

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
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	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	09/01/2019	06/02/2019	67.4	72.3	67.7	69	2.7	4	6.8	39	100	Good	Good
2	06/02/2019	07/03/2019	60.9	38.8	63.3	54	13.5	24.9	33.5	37	100	Poor Precision	Good
3	07/03/2019	03/04/2019	45.0	46.0	47,2	46	0.7	2	6.4	27	100	Good	Good
4	03/04/2019	01/05/2919	48.8	50.4	50.6	50	1.0	2	2.5	27	100	Good	Good
5	01/05/2919	05/06/2019	45.9	45.9	46.2	46	0.2	0	0.4	30	100	Good	Good
6	05/06/2019	03/07/2019	43.1	43.3	40.5	42	1.6	4	3.9	26	100	Good	Good
7	03/07/2019	07/08/2019	48.3	42.5	43.8	45	3.0	7	7.6	23	79	Good	Good
8	07/08/2019	04/09/2019	41.0	43.6	45.1	43	2.1	5	5.2		0	Good	or Data Capture
9	04/09/2019	03/10/2019	47.9	44.4	47.6	47	1.9	4	4.8		0	Good	or Data Capture
10	03/10/2019	06/11/2019	50.8	50.6	48.4	50	1.3	3	3.3		0	Good	or Data Capture
11	06/11/2019	05/12/2019	43.6	48.0	49.7	47	3.1	7	7.8		0	Good	or Data Capture
12	05/12/2019	07/01/2020	51.5	52.9	54.5	53	1.5	3	3.7	40	27	Good	or Data Capture
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 | Poor Overall DC

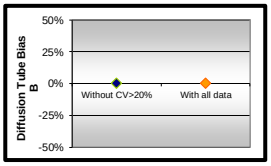
Site Name/ ID: Cimla Road 2019

Precision: 11 out of 12 periods have a CV smaller than 20%

(Check average CV & DC from Accuracy calculations)

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 6 periods of data
Bias factor A
Bias B
Diffusion Tubes Mean: 50 µgm^{-3}
Mean CV (Precision): 3
Automatic Mean: 29 µgm^{-3}
Data Capture for periods used: 97%
Adjusted Tubes Mean: µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 7 periods of data
Bias factor A
Bias B
Diffusion Tubes Mean: 50 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 30 µgm^{-3}
Data Capture for periods used: 97%
Adjusted Tubes Mean: µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

However in 2019, a series of problems at the Victoria Gardens site lead to significant data losses. This meant that a bias factor could not be obtained for this site. Consequently, the use of a nationally derived bias adjustment factor was considered to be more appropriate than relying on just one site. The nationally derived bias adjustment factor of 0.75 was used for 2019.

PM Monitoring Adjustment

No PM_{10} adjustment was required since the TEOM-FDMS has passed equivalence tests.

Short-Term to Long-Term Data Adjustment

Two NO2 diffusion tube sites with Ids 8 and 10 experienced data capture rates lower than 75% during 2019. The annual means for Port Talbot (15.10 ug/m3) and Narberth (3.6 ug/m3) were used for the annualisation. The period means are 16.82 and 4.22 respectively. Figures for R were 0.9 and 0.85 respectively. From this Ra was calculated (0.88). This was applied as per the guidance to produce the annualised figures shown above.

Dyffryn School was the only site that continuously measured PM10 where the data capture rate fell below 75%. Twll yn y Wal and Port Talbot Fire Station sites were chosen for annualisation. The period means are 18.5 and 20.8 respectively. Figures

for R were 1.14 and 1.02 respectively. From this Ra was calculated (1.08). This was applied to the annual average (20.4) concentration for Dyffryn School to obtain the estimated annual average (22.0).

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

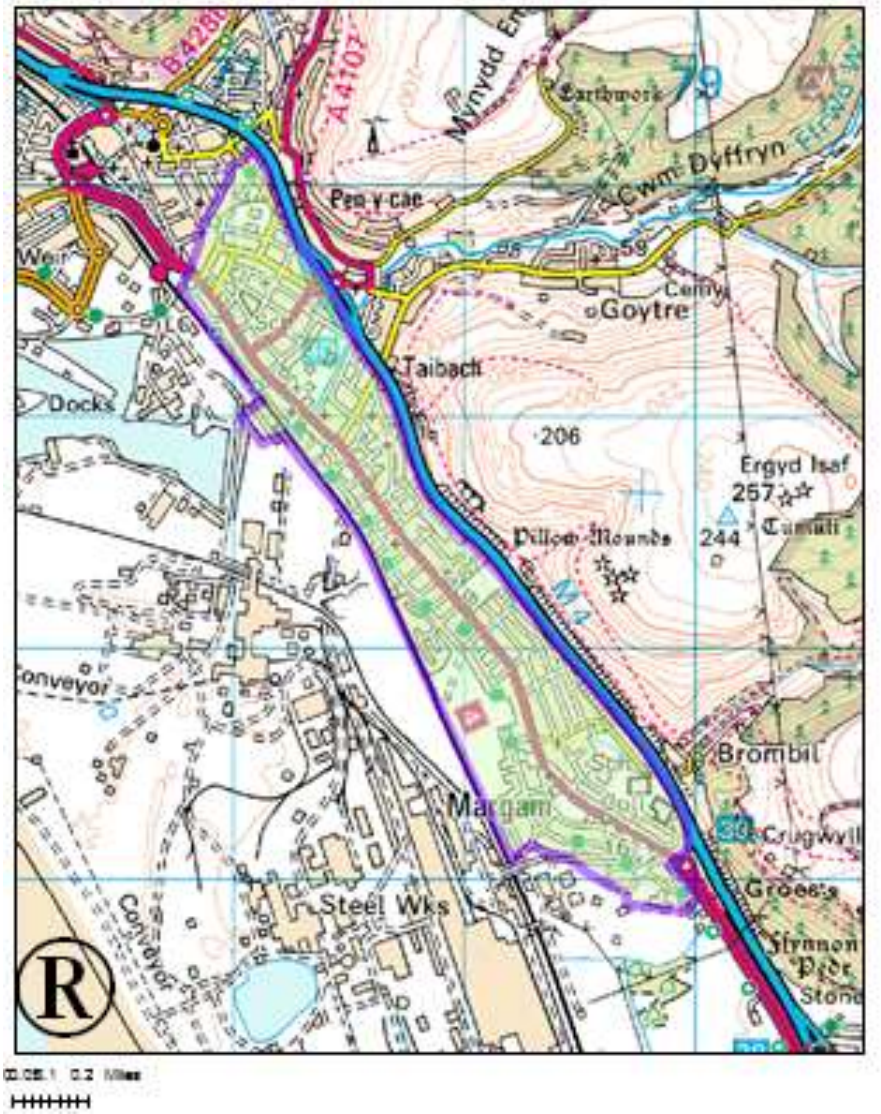
NO_2 diffusion tubes are sourced from the Environmental Scientifics Group Socotec and are prepared using 50% TEA in acetone.

Lab performance results are shown here:

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

Appendix D: AQMA Boundary Maps

Figure D.1 – Taibach Margam AQMA



Details of AQMAs in Wales may also be obtained via

https://airquality.gov.wales/laqm/air-quality-management-areas

Appendix E: Deposit gauge reports

Figure E4.1 Prince Street pie charts

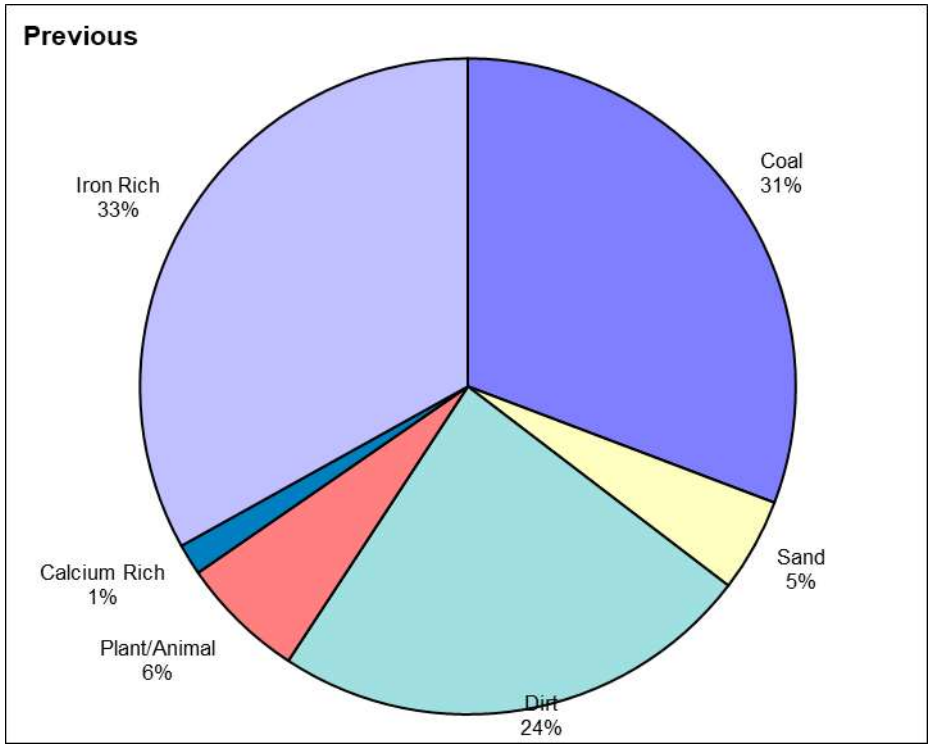
Deposit Gauge Analysis Report

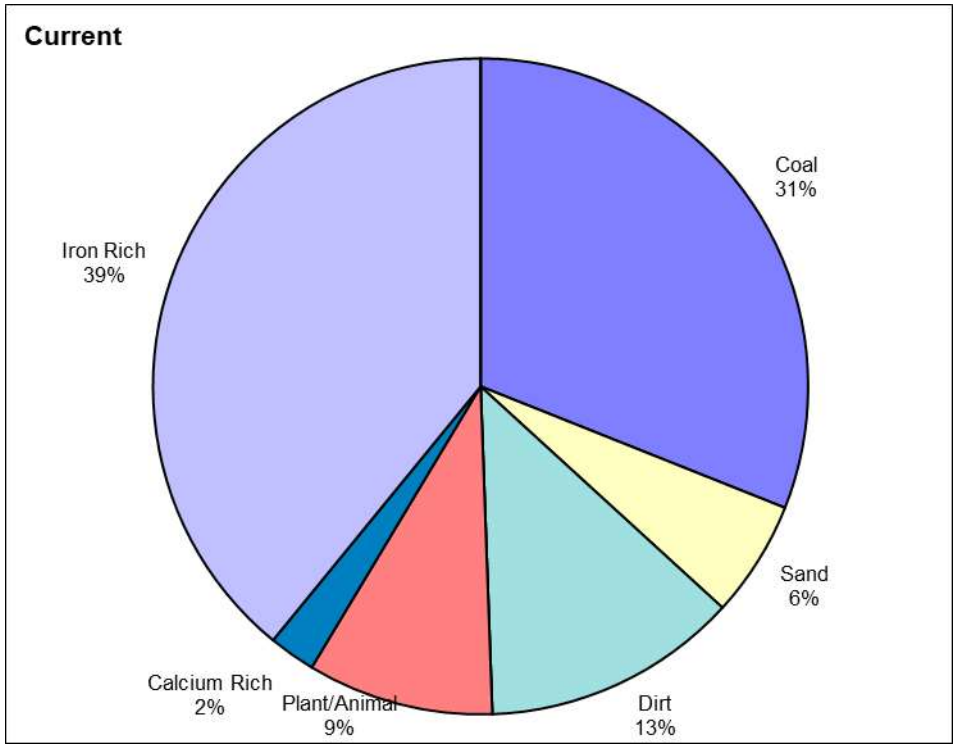
24, Prince Street, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	5	11	0	8	2	34	0
	Previous	40	0	6	31	0	8	2	43	0

Figure E4.2 Prince Street fallout rates

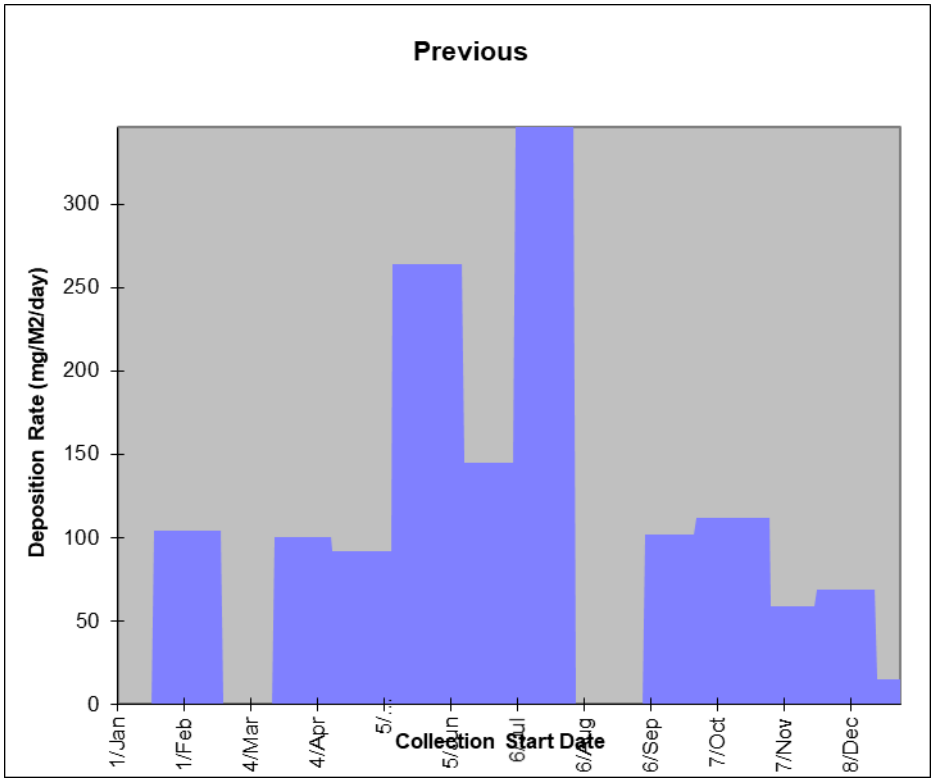
Deposit Gauge Analysis Report

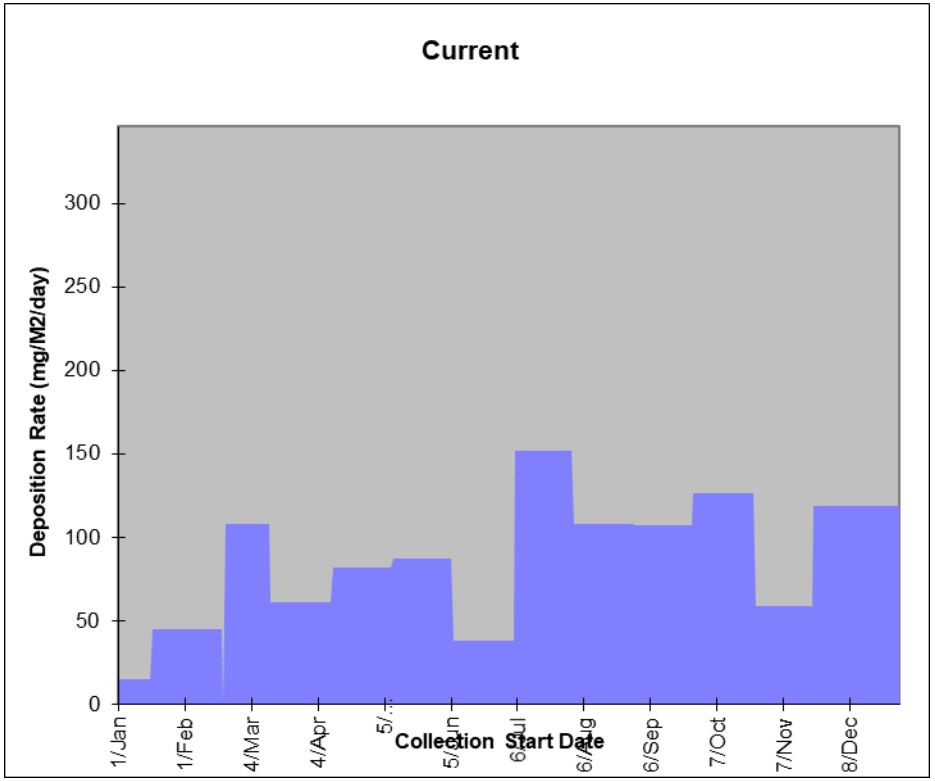
24, Prince Street, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	87	152	12	99.7	0	0
Previous	138	346	11	81.7	0	61
Change	-51	Decrease -37%				

Figure E4.3 Port Talbot Fire Station pie charts

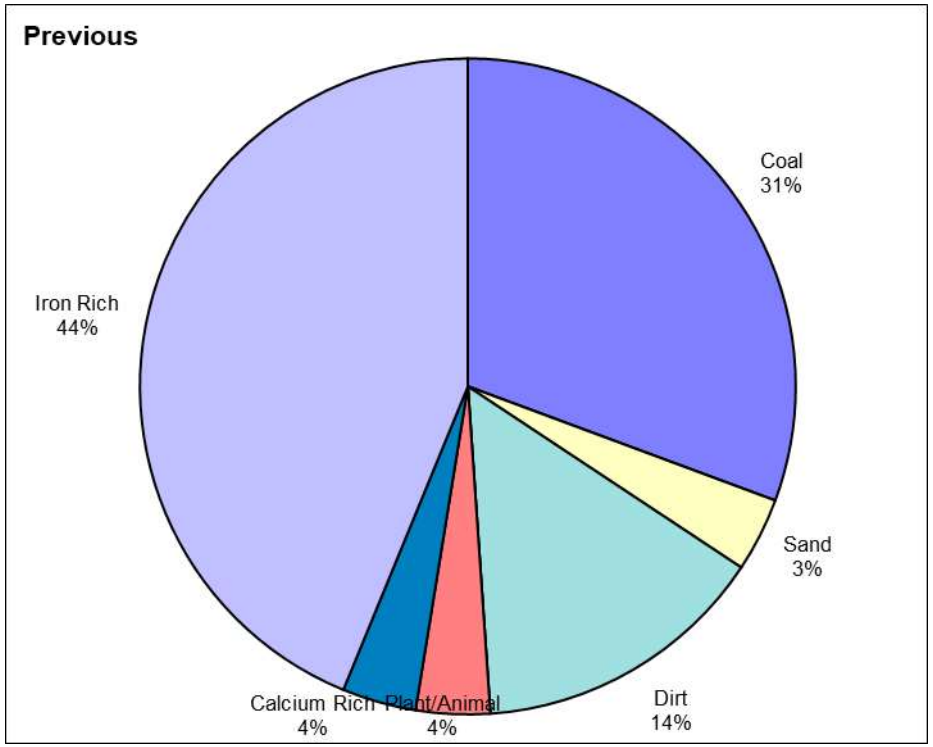
Deposit Gauge Analysis Report

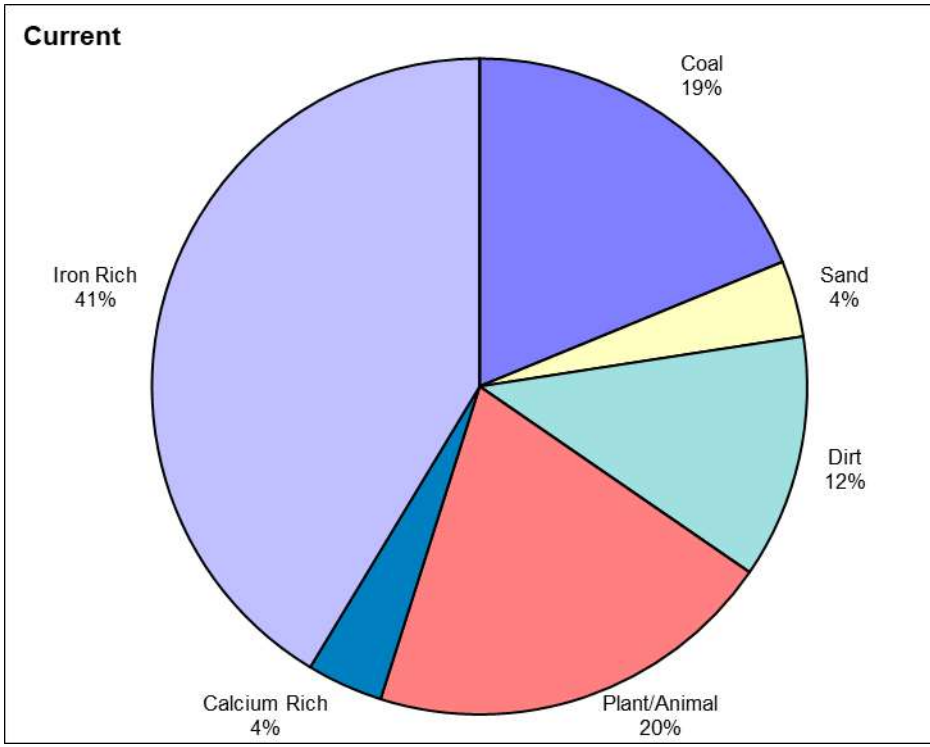
Port Talbot Fire Station

Comparison of Fallout Composition

Current Period = 01-Jan-19 To 31-Dec-19

Previous Period = 01-Jan-18 To 31-Dec-18





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	25	0	5	16	0	27	5	55	0
	Previous	42	0	5	20	0	5	5	60	0

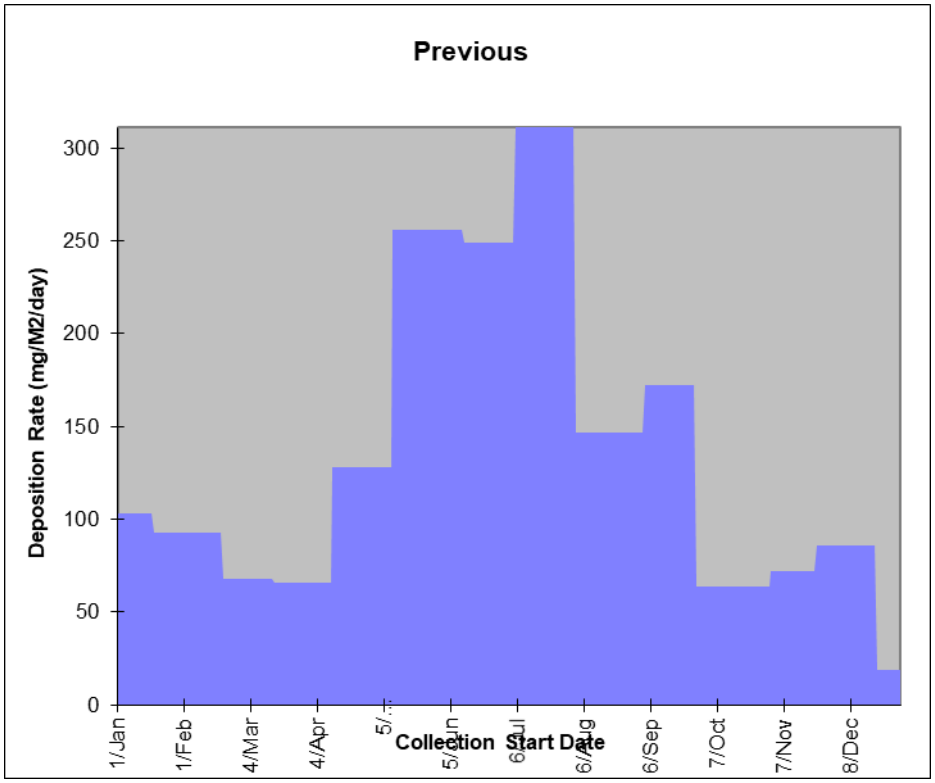
Deposit Gauge Analysis Report

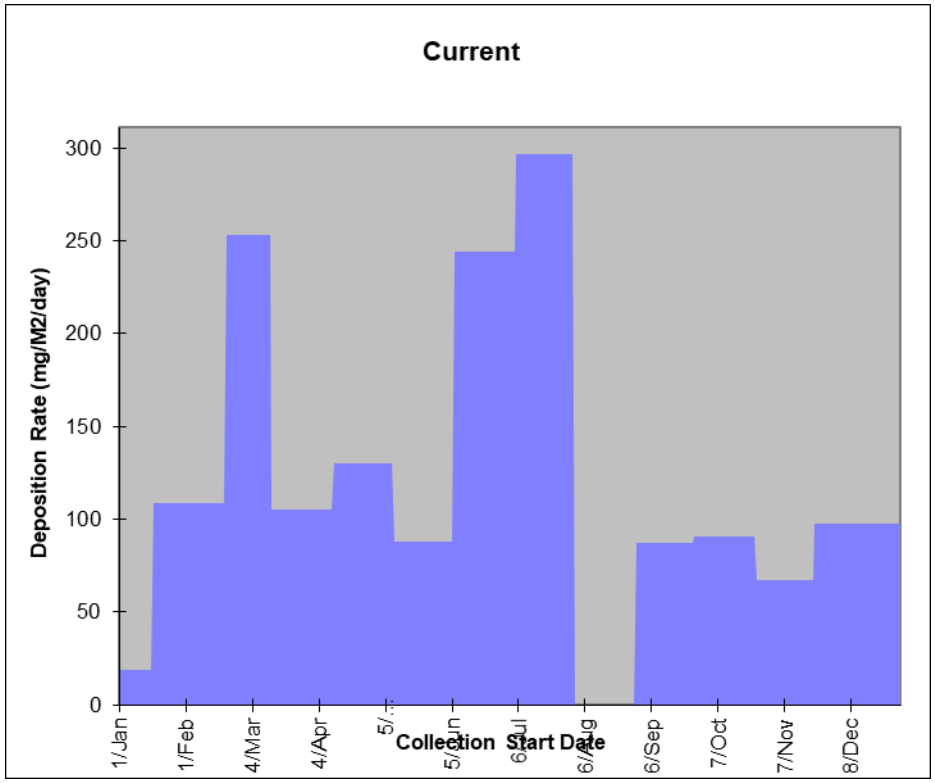
Port Talbot Fire Station

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	132	297	11	92.0	0	77
Previous	137	311	13	100.0	0	85
Change	-5	Decrease -4%				

Figure E4.5 Tairgwaith pie charts

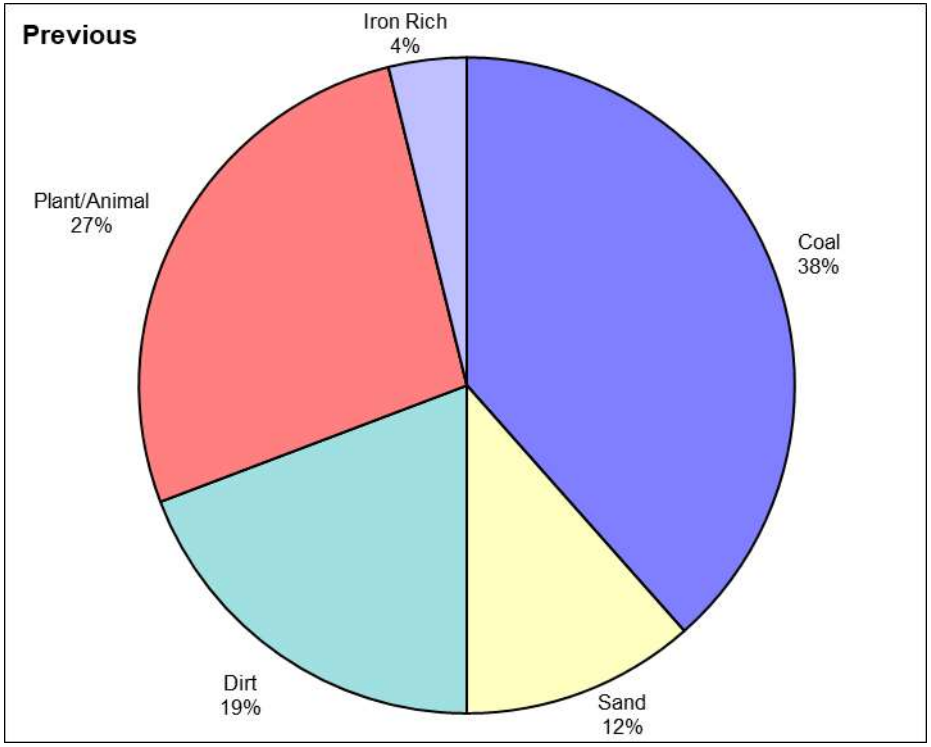
Deposit Gauge Analysis Report

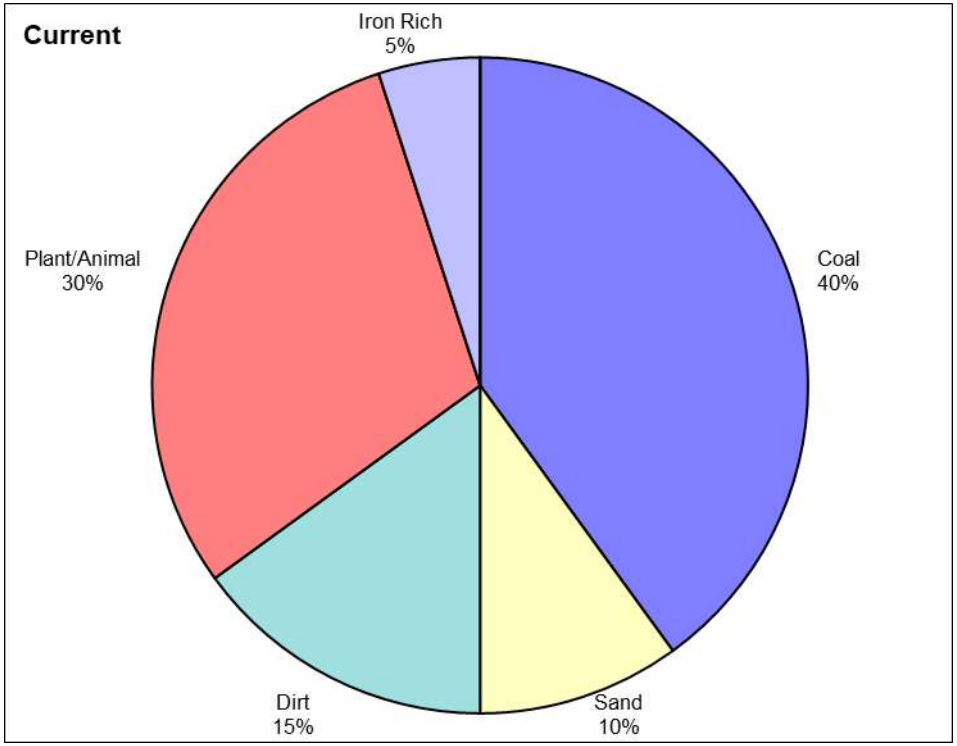
Workingmens Club, Tairgwaith

Comparison of Fallout Composition

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	6	0	1	0
	Previous	10	0	3	5	0	7	0	1	0

Figure E4.6 Tairgwaith fallout rates

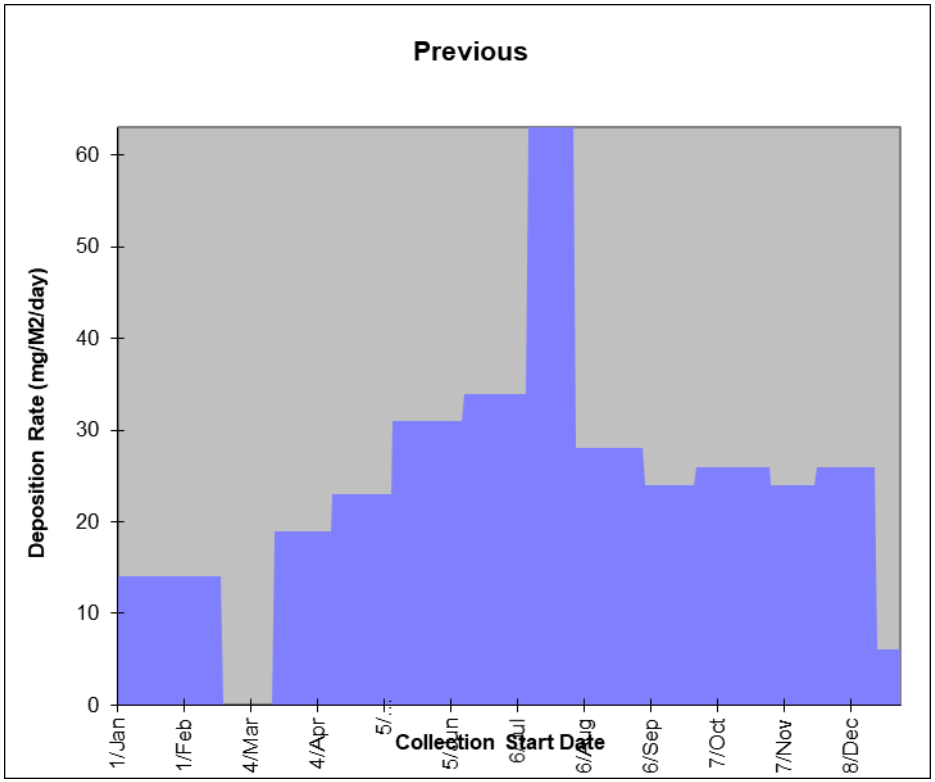
Deposit Gauge Analysis Report

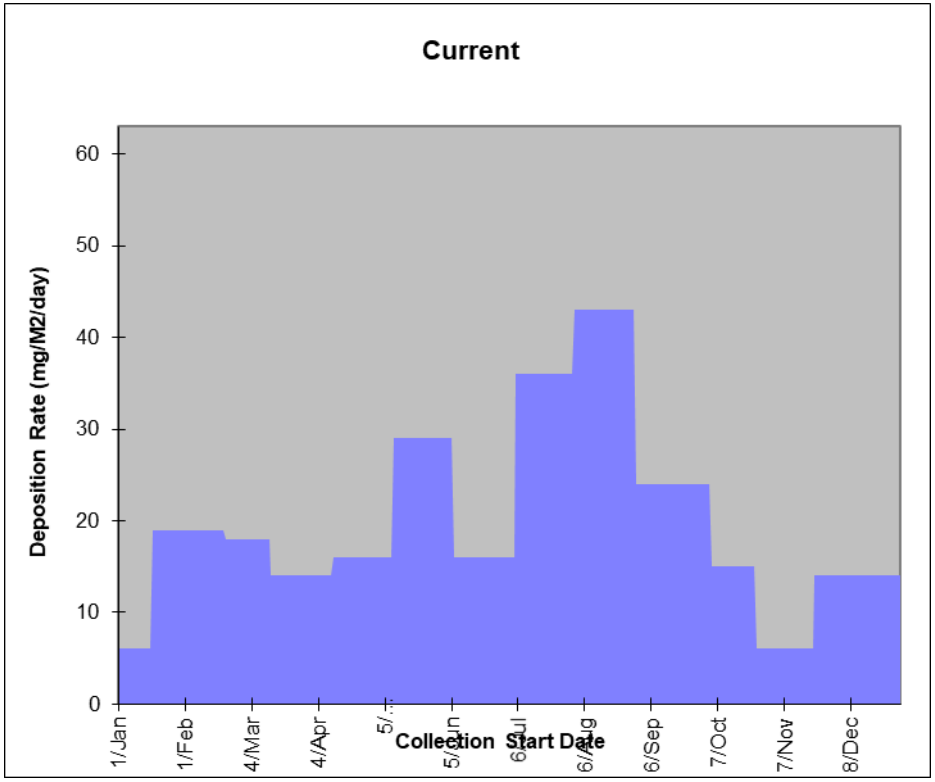
Workingmens Club, Tairgwaith

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	43	12	100.0	0	0
Previous	26	63	12	93.2	0	0
Change	-6	Decrease -23%				

Figure E4.7 Onllwyn pie charts

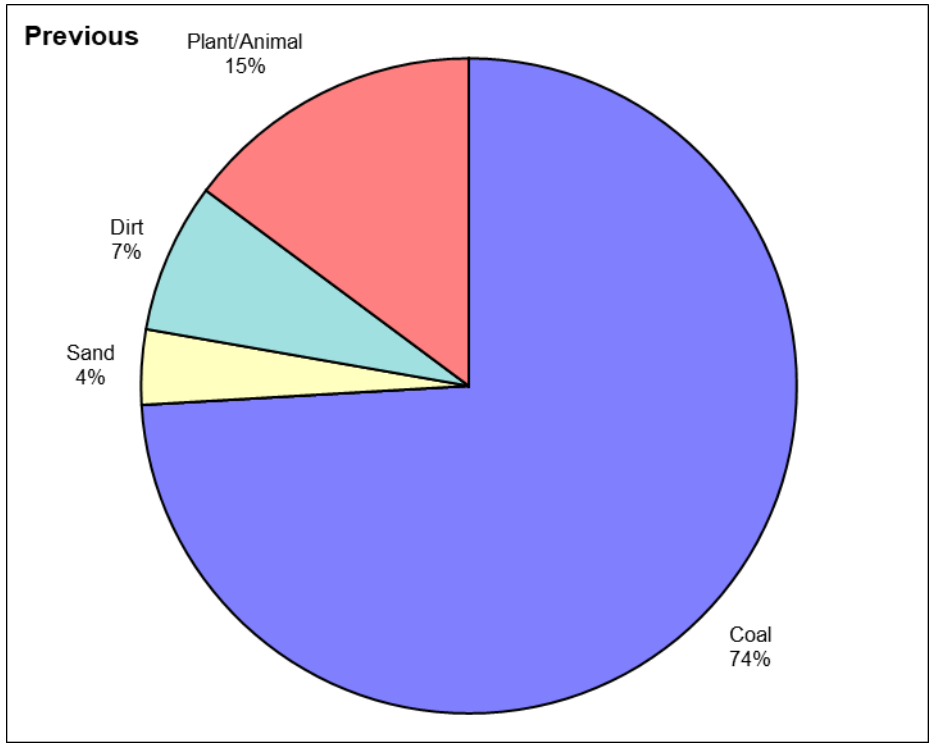
Deposit Gauge Analysis Report

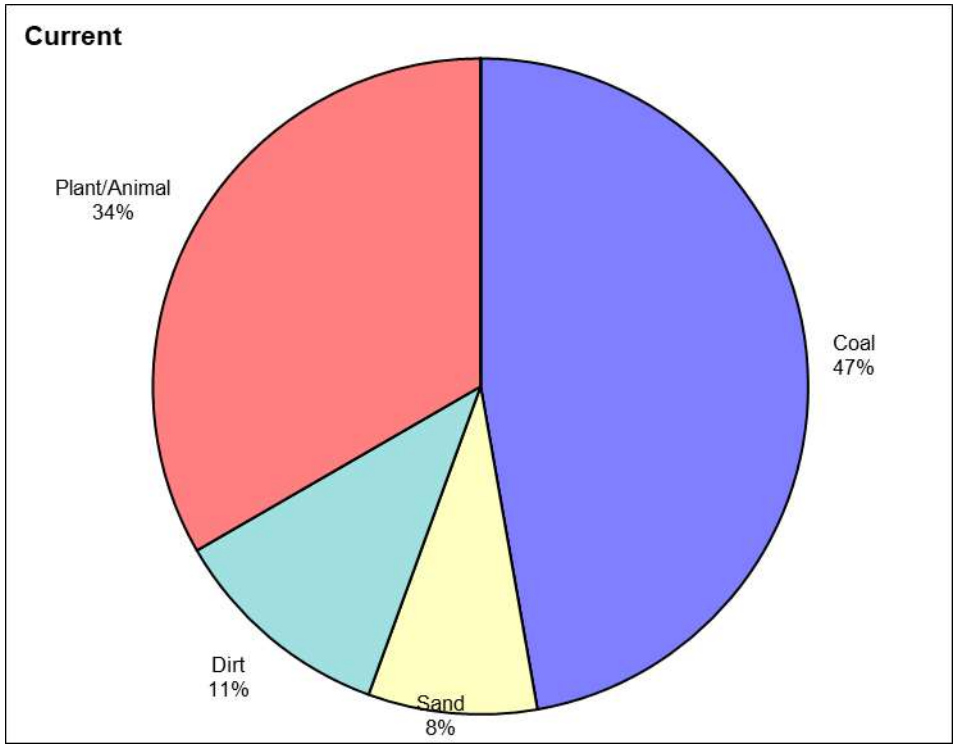
11, Wembley Avenue, Onllwyn

Comparison of Fallout Composition

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	3	4	0	12	0	0	0
	Previous	40	0	2	4	0	8	0	0	0

Figure E4.8 Onllwyn fallout rates

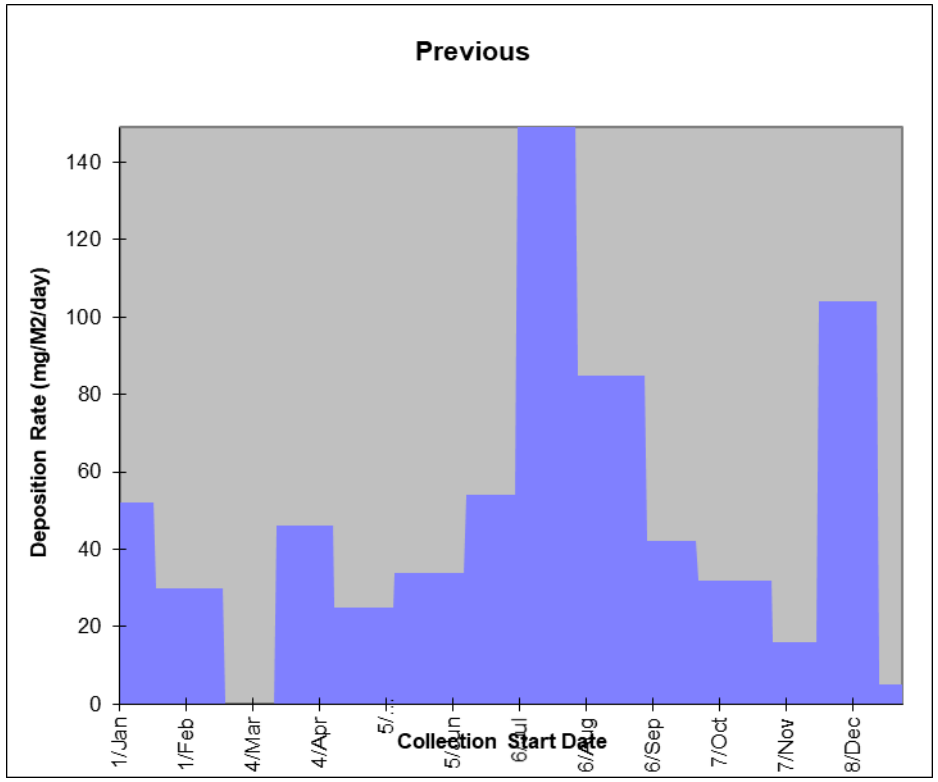
Deposit Gauge Analysis Report

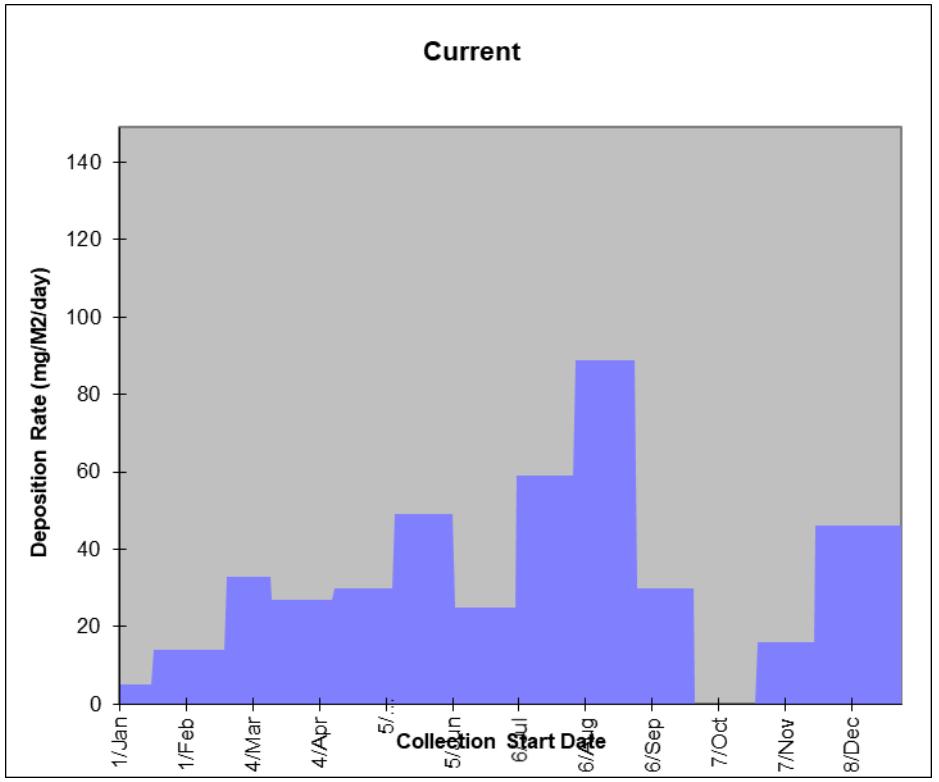
11, Wembley Avenue, Onllwyn

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





Period	Fallout Level (mg/m2/day)		No. Samples	% Data Capture	200 mg/m2/day 'Nuisance Limit'	
	Average	Maximum			Days within 10% of	Days Exceeding
Current	37	89	11	92.0	0	0
Previous	54	149	12	93.2	0	0
Change	-17	Decrease -31%				

Figure E4.9 Little Warren pie charts

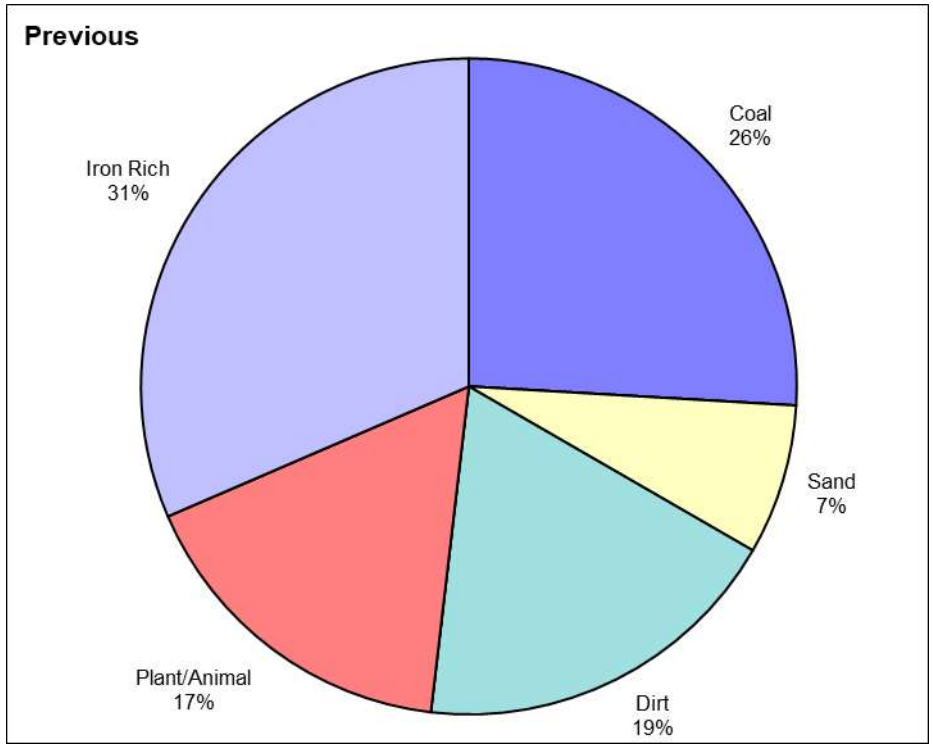
Deposit Gauge Analysis Report

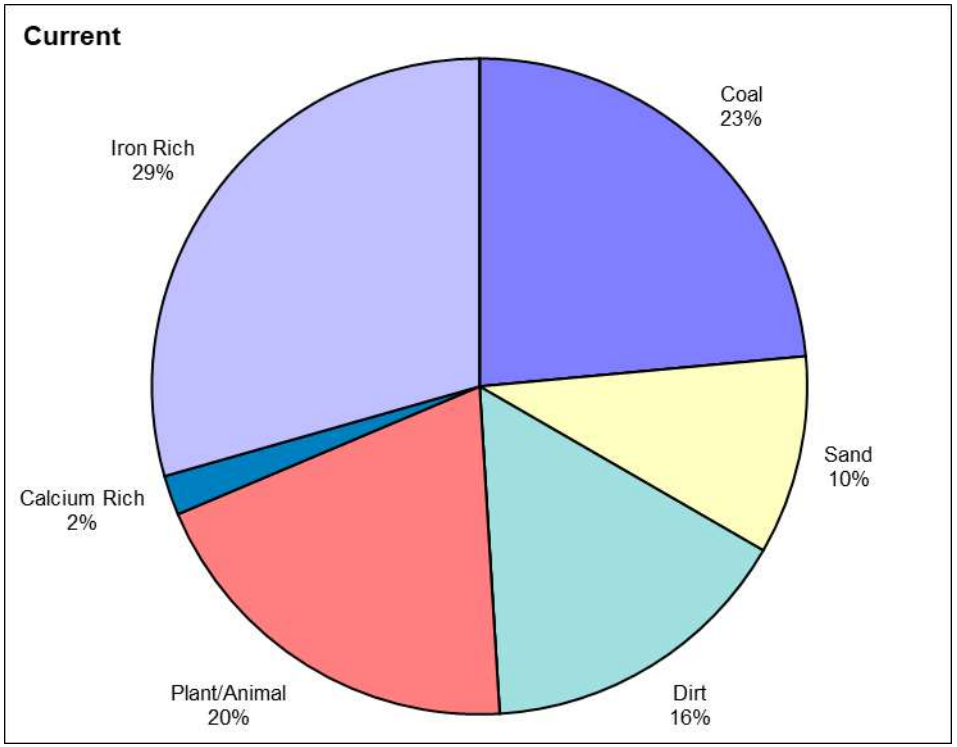
Little Warren, Port Talbot

Comparison of Fallout Composition

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	12	0	5	8	0	10	1	15	0
	Previous	14	0	4	10	0	9	0	17	0

Figure E4.10 Little Warren fallout rates

Neath Port Talbot Council

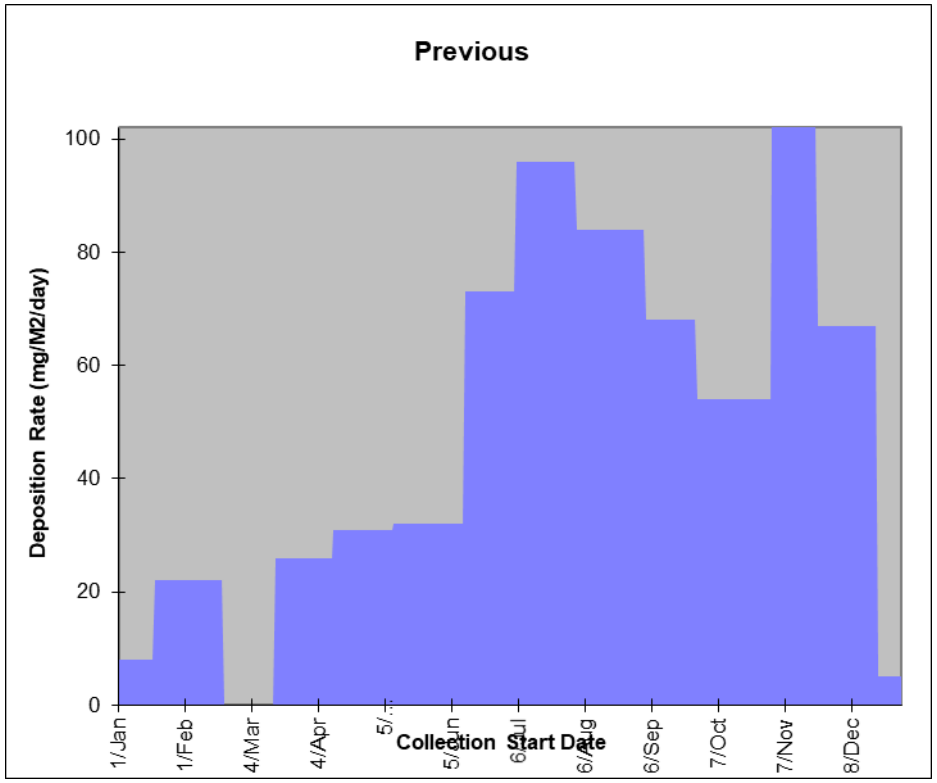
Deposit Gauge Analysis Report

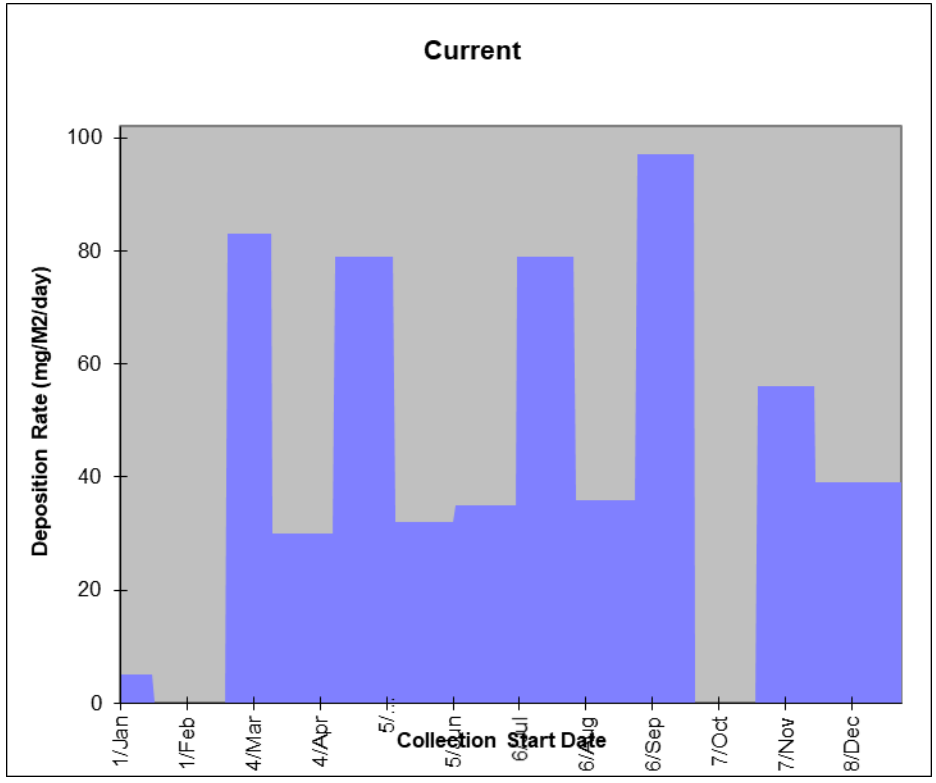
Little Warren, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	52	97	12	93.4	0	0
Previous	53	102	12	92.1	0	0
Change	-1	Decrease -2%				

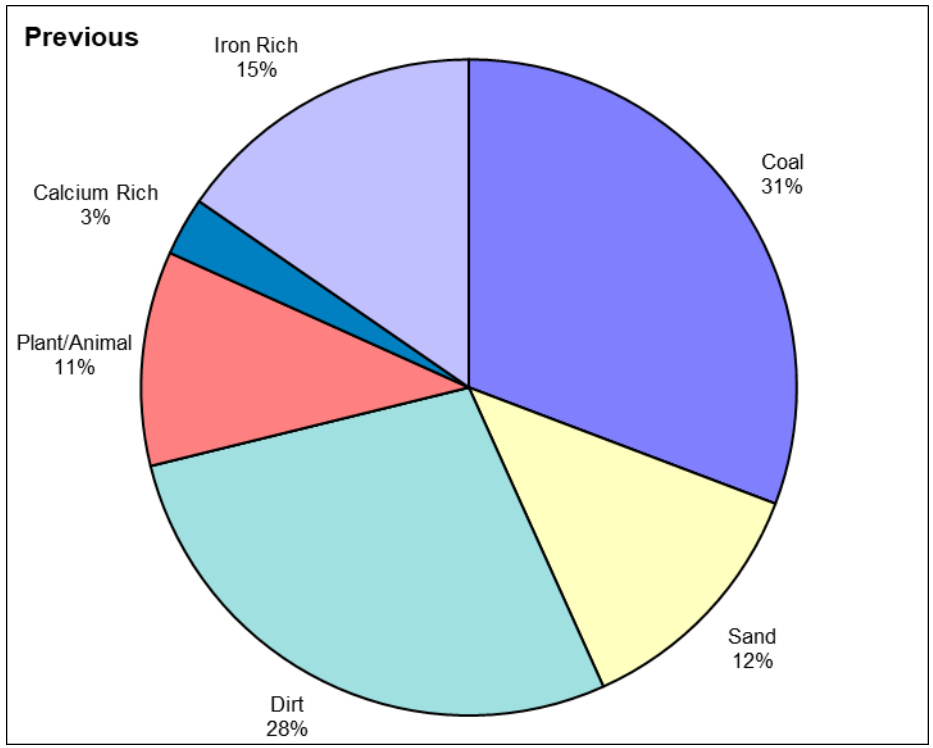
Deposit Gauge Analysis Report

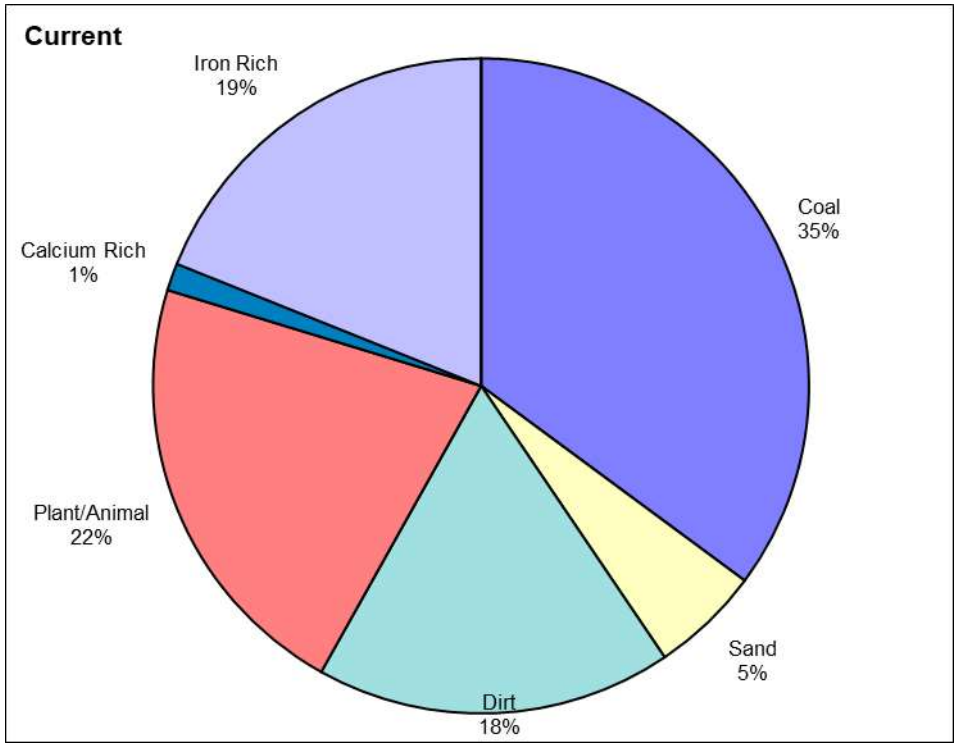
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





Measurement Type	Period	Coal	Carbonised	Sand	Dirt	Fly Ash	Plant/Animal	Calcium Rich	Iron Rich	Others
Av. Deposition Rate (mg/m2/day)	Current	26	0	4	13	0	16	1	14	0
	Previous	32	0	13	29	0	11	3	16	0

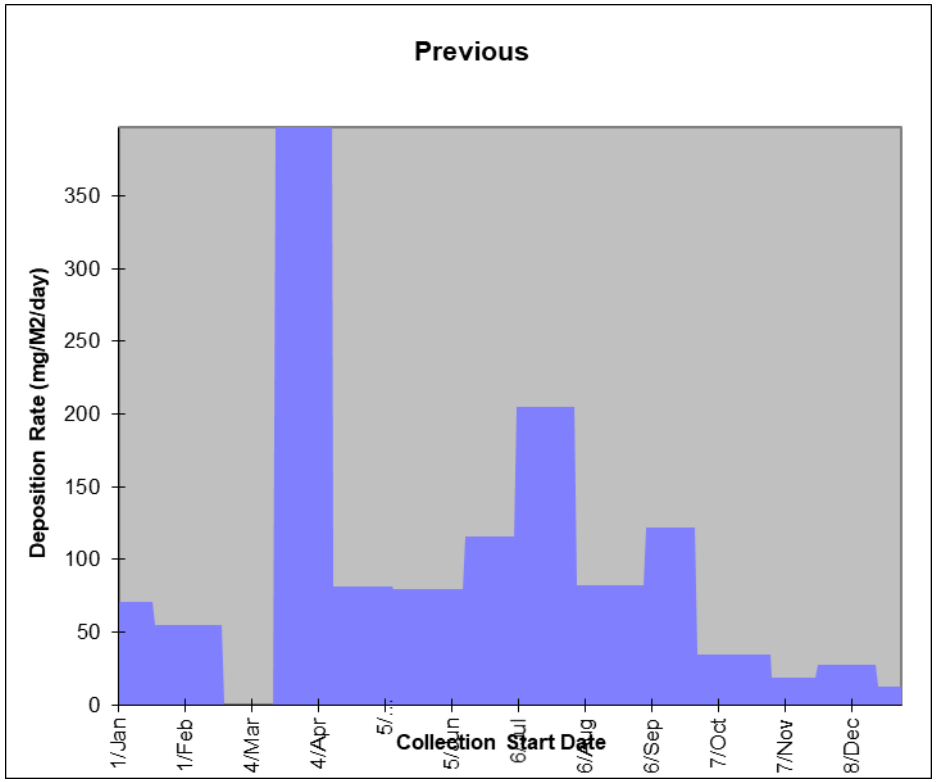
Deposit Gauge Analysis Report

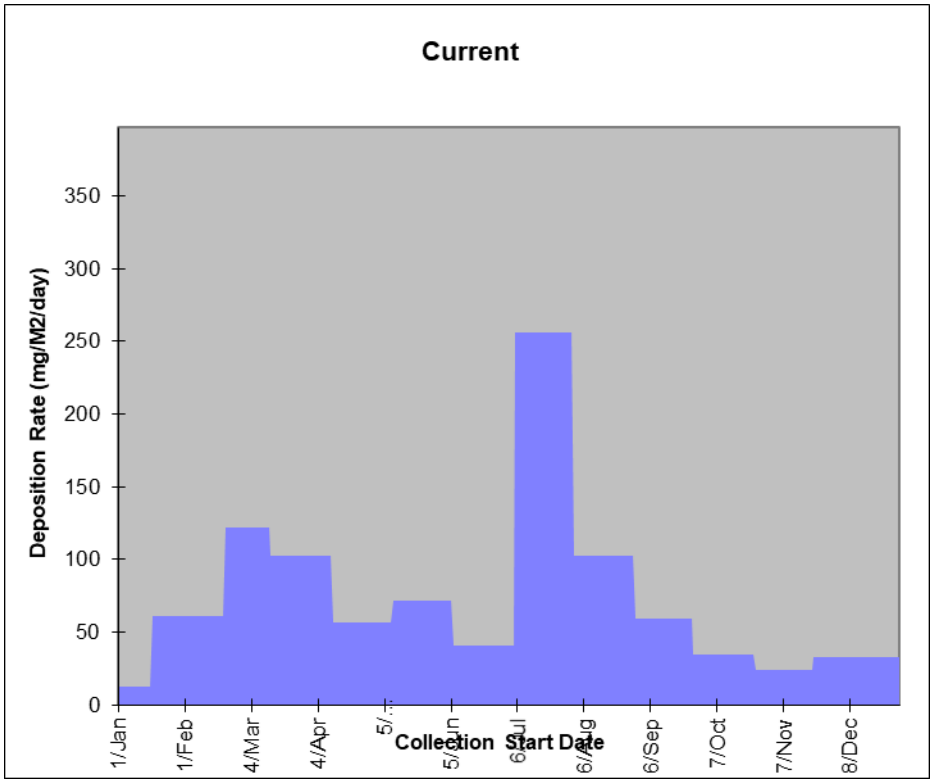
Dyffryn School, Bertha Road, Port Talbot

Comparison of Fallout Rate with Time

Current Period = 01-Jan-19 to 31-Dec-19

Previous Period = 01-Jan-18 to 31-Dec-18





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	74	256	12	100.0	0	27
Previous	103	397	12	93.2	0	55

Figure E4.15Comparison of average fallout rates, 2019

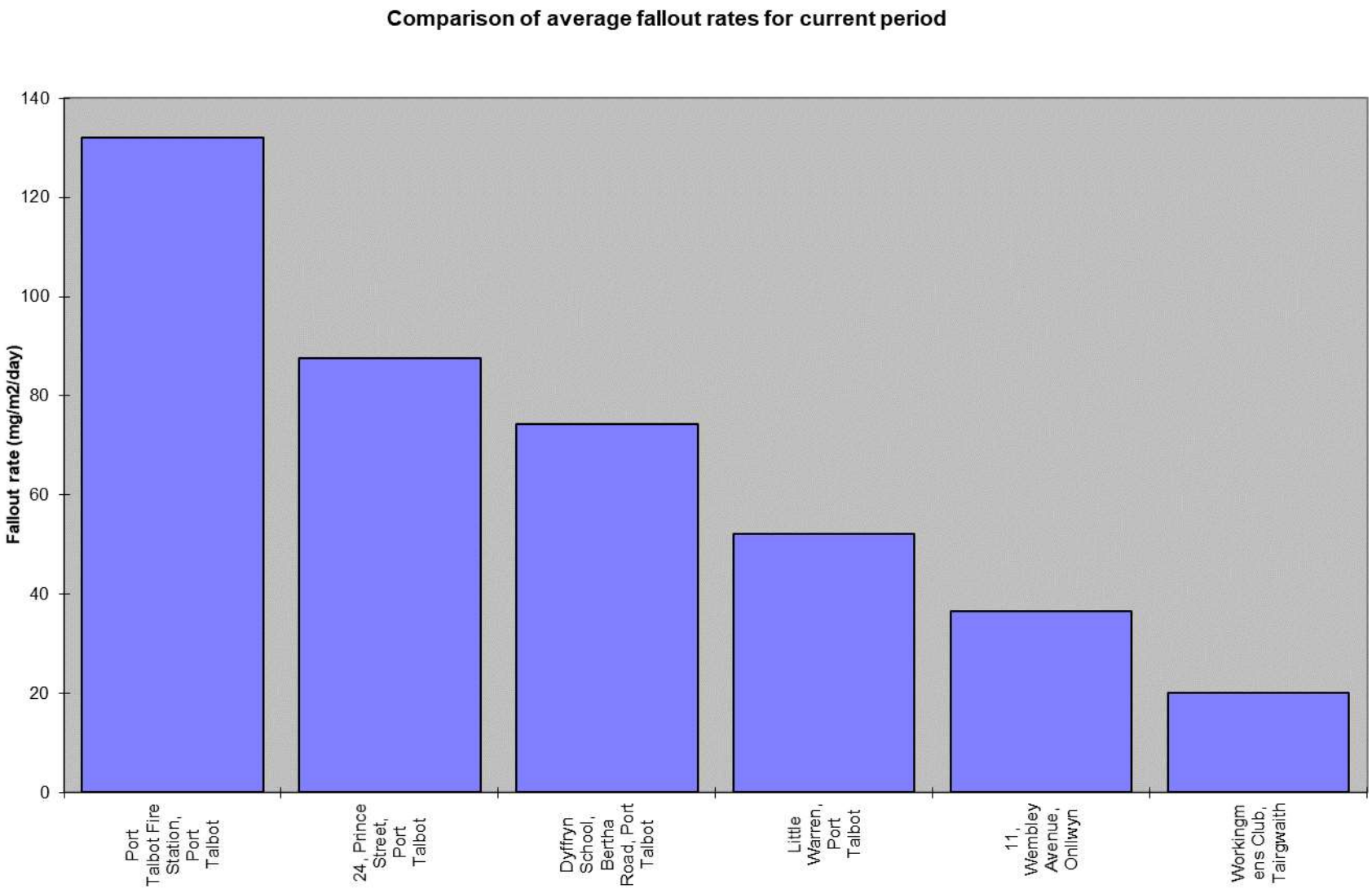


Table E4.1 - Sites ranked by average fallout level (mg/m^2/day) 2019

Site Name	Fallout Level (mg/M2/day)		200 mg/M2/day 'Nuisance Limit'	
	Average	Maximum	Days within 10% of	Days Exceeding
Port Talbot Fire Station	132	297	0	77
24, Prince Street, Port Talbot	87	152	0	0
Dyffryn School, Port Talbot	74	256	0	27
Little Warren, Port Talbot	52	97	0	0
11, Wembley Avenue, Onllwyn	37	89	0	0
Workingmens Club, Tairgwaith	20	43	0	0
Port Talbot Fire Station, Port Talbot	132	297	0	0

Figure E4.16 Long term deposition rates

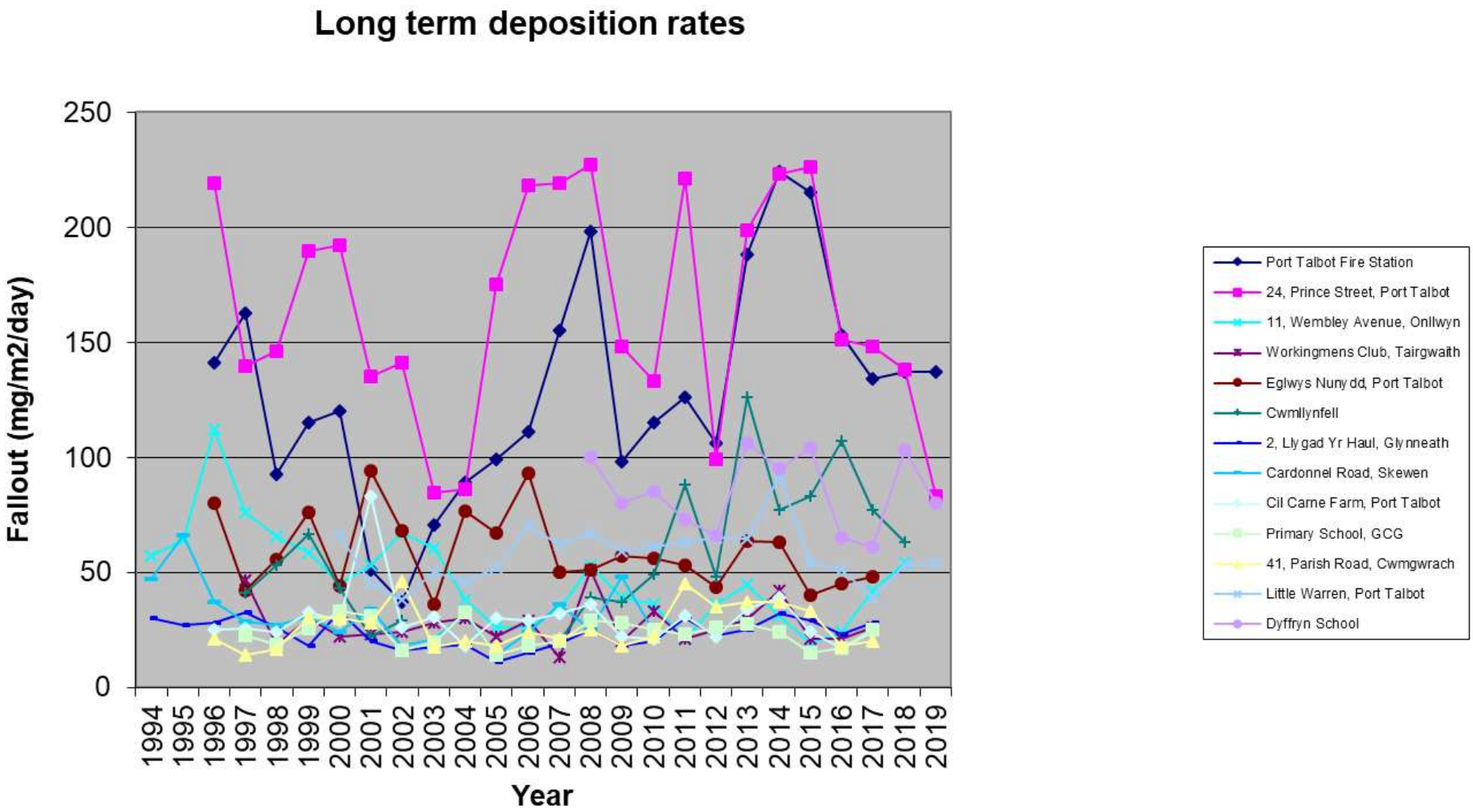


Table E4.2 - Long term deposition rates

Site Name	Fallout rate (mg/m2/day)																
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Port Talbot Fire Station	70	89	99	111	155	198	98	115	126	106	188	224	215	153	134	137	137
24, Prince Street, Port Talbot	85	86	175	218	219	227	148	133	221	99	199	223	226	151	148	138	83
11, Wembley Avenue, Onllwyn	60	38	26	26	34	53	39	36	21	36	45	31	19	24	42	54	
Workingmens Club, Tairgwaith	28	30	22	29	13	51	20	33	21	25	30	42	21	21	26	26	
Eglwys Nunydd, Port Talbot	36	77	67	93	50	51	57	56	53	44	64	63	40	45	48		
Cwmllynfell					20	39	37	49	88	48	126	77	83	107	77	63	
2, Llygad Yr Haul, Glynneath	18	19	11	15	19	25	18	20	30	23	25	32	29	23	28		
Cardonnel Road, Skewen	21	32	14	24	36	25	48	24		24							
Cil Carne Farm, Port Talbot	30	18	30	29	32	36	22	21	31	22	34	39	24	17	24		
Primary School, GCG	19	33	14	18	20	29	28	25	23	26	28	24	15	17	25		
41, Parish Road, Cwmgwrach	18	20	18	24	21	25	18	22	45	35	37	37	33	18	20		
Little Warren, Port Talbot	50	46	52	70	62	67	59	61	63	65	65	92	54	51	39	53	54
Bryn Hyfred				40	31	32	27	27									
Dyffryn School						100	80	85	73	66	106	95	104	65	61	103	80

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide