

Wall Colmonoy site

Preamble

In an assessment of a risk from a process, a standard source-pathway receptor model is developed to enable identifying best method for managing the risk. Method of risk management include removal/control of the source, removal of the pathways to sever the connections between source and receptors or removal of the receptors.

In advising that this planning application will be rejected based on air quality issues, it seems that the authority has elected the latter (removal of receptor). This would have been a legitimate option if the proposed development was the only receptor. As the authority is aware, this is not the case as according to DEFRA ^(1,2), an area of, at least 4 km² is affected by an impacted air quality with the concentration of Nickel being regularly and significantly above the target value although at varying degrees.

A report by Defra ⁽¹⁾ states that this exceedance situation is an area of exceedance of 1 km² and is located in the Swansea valley in the north of the Swansea Urban Area agglomeration zone. The resident population associated with this exceedance situation is 2,102. This exceedance situation is adjacent to and shares common sources with the exceedance situation for South Wales. In South Wales, DEFRA ⁽²⁾ states that this exceedance situation is an area of exceedance of 3 km² and is located in South Wales (non- agglomeration zone code UK0041). The resident population associated with this exceedance situation is 2962.

Exceedances within these zone were identified on the basis of measurement data, with model results on a 1 km x 1 km grid resolution providing supplementary information. Fine scale modelling on a 20 m x 20 m grid resolution located around an identified industrial source provided a more detailed local assessment.

On page 38 of DEFRA report¹ Figure A1 shows a comparison between measured and modelled Ni concentrations. Modelled concentrations are the sum of contributions from the local point source model and the national background model. The figure shows good correlation

On the same page of the DEFRA report¹ Figure A2 shows the modelled annual mean Ni concentration resulting from the local industrial point source in Pontardawe in 2016. This figure shows the shape and extent of the plume from common source affecting the above two zones, the Wall Colmonoy site.

The Ni concentrations in Pontardawe were strongly influenced by the terrain in the area, as can be seen in Figure A2. The Swansea Valley runs south-west to north-east through the village of Pontardawe, where the point source is located. Figure A2 shows that the distribution of the Ni concentrations in the vicinity of Pontardawe corresponded with the local topography. This is believed to be due to channelling of the local wind flow by the Swansea Valley. Because of this topography, impact on our site at Holly Street, seems to be less than that at the nearest monitoring station at Pontardawe Tawe Terrance, despite its nearer location to the Wall Colomnoy site, due to its location being at the edge of the plume as can be seen from Figure A2. We have asked for a copy of this air dispersion modelling to ascertain the pattern of the concentration in the immediate locality but still awaiting for the report.

It is apparent from the above that this issue of air quality has wider implication than the proposed development with a significant areas of Swansea and south wales being impacted by the failing of one of the permitted activities to achieve what is expected in their permit conditions. Significant information and data are published by NPT council and DEFA demonstrating that the cause of the breach of the air quality target value is not the inability of available technology (BAT), to achieve a good standard of emission that secures the air quality in the area, rather it is caused by regular failing in the maintenance of the abatement systems as will be demonstrated by information provided by NPT and NPL.

The above two reports give a more detailed source apportionment for the industry sector and shows that the main source associated with these exceedance situations are industrial emissions attributed to stack emissions from Wall Colmonoy. The emissions from Wall Colmonoy are regulated by the Neath Port Talbot County Borough Council

Under the EU Directive 2004/107/EC1, the target value (TV) for nickel (Ni) is an annual mean concentration of 20 ng/m³ of ambient air or lower. The Directive requires that Member States shall report on measures in place to address the exceedance of the TV and that all reasonable measures that do not entail disproportionate cost should be taken to ensure this target is not exceeded.

The DEFRA reports ^(1,2) reported that to improve the air quality in the locality, the Welsh Government brought together the regulators and local industrial operators with emissions of Ni to air in pursuit of this aim. Regular meetings have enabled:

- the Welsh Government to communicate to the industrial regulators and operators the extent of the issue and the seriousness with which it is taken;
- the regulators to demonstrate that the operators are applying all cost-effective measures, and in particular are applying best available techniques as required by Council Directive 2010/75/EU (IED);
- the operators to cooperate and share best practice in managing their operations; and
- the development of the latest evidence in understanding the predominant sources

Air Quality in the Area and Sources

Every year, the NPT county Borough council publish an air quality progress report in fulfilment of part IV of the environment act 1995 for local air quality management. These reports provide a good insight into local air quality issues, their causes and actions for improvements. In the next few paragraphs below, we considered the information provided in the last few years (2015-to date).

The monitoring station at Tawe 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. This is the closest monitoring station to the proposed development at Holly Street

The 2015⁴ data was published in July 2016 and stated that Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe, except Tawe Terrace. Nickel levels decreased substantially at Tawe Terrace during 2015.

The average concentration of nickel in 2015 was 22.1 ng/m³ which is 110% of the Air Quality Objective. This is a significant improvement upon the figure recorded in 2014 (43.4 ng/m³). The report⁴ states that this is likely to have been due to the improvements that were made at the Wall Colmonoy plant during 2014 and since. Tawe Terrace is the only site which currently exceeds the E.U. Target.

For the following year, 2016, the NPT county Borough council air quality progress report published July 2017⁽⁵⁾ states that Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe, with the exception of Tawe Terrace and Pontardawe Leisure Centre. Nickel levels at Tawe Terrace went back up to levels previously encountered in 2014. Levels of nickel at Tawe Terrace (47.4 ng/m³) increased substantially compared to the 2015 value (22.1 ng/m³) and were similar to the 2014 figure (43.4 ng/m³). This is a disappointing result given

the improvements to abatement systems that have taken place in recent years. Investigations suggest that faults and maintenance problems are probably to blame and this will be the focus for regulation of the plant in 2017 (our underlining).

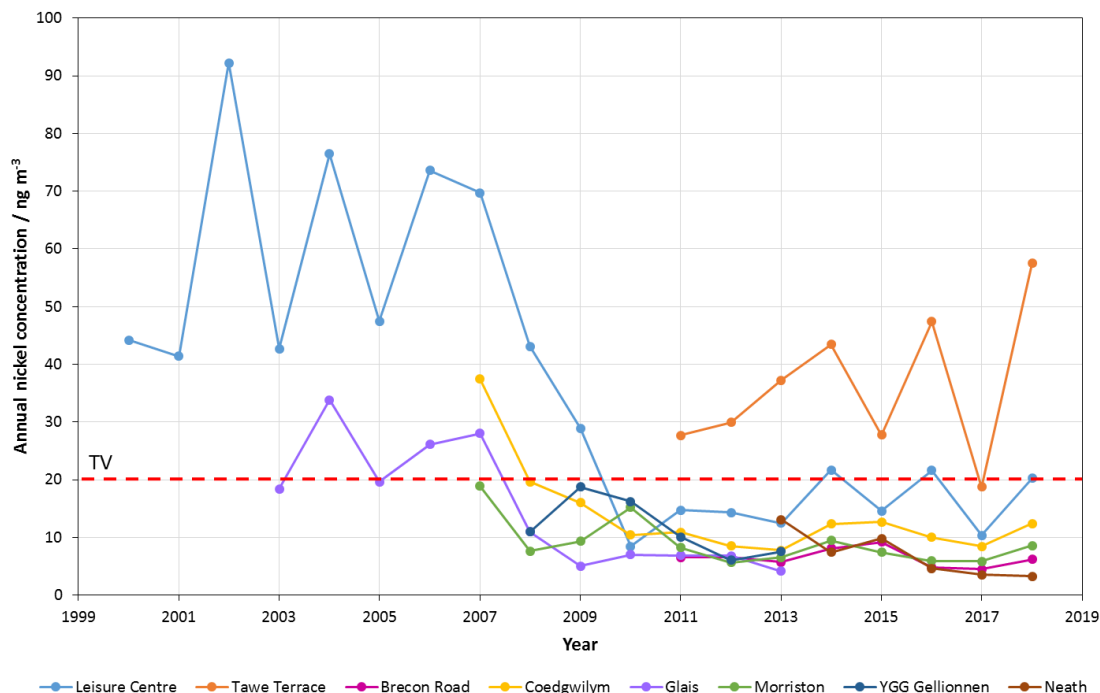
In the following year, 2017, The NPT county Borough council air quality progress report published July 2018⁽⁶⁾ states that Nickel concentrations comply with the EU Target at all locations in Neath, Port Talbot and Pontardawe. This is the first occasion that nickel levels at Tawe have complied with the EU Target and is a consequence of effective regulation and operation of the Wall Colmonoy site. The average concentration of nickel in 2017 was 18.3 ng/m³ which is 92% of the Target value. This is an improvement upon the figure recorded in 2016 (47.4 ng/m³) and the first time the Target has been complied with at this site.

However in the following year, 2018, the NPT county Borough council air quality progress report published September 2019⁽⁷⁾ states that 2018 was a poor year, but the long-term trend is towards reducing concentrations and that the main source of raised nickel levels in Pontardawe is the Wall Colmonoy works, which is regulated by the Council. It states that 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. It states that Nickel concentrations exceeded the EU Target of 20 ng/m³ at Tawe Terrace and Pontardawe Leisure Centre. The report⁷ states that these non-compliances are considered to be linked to problems with specific abatement plant at the Wall Colmonoy plant, which were subsequently resolved.

The average concentration of nickel in 2018 was 56.7 ng/m³ which is 280% of the Target value. This is a substantial deterioration on the figure recorded in 2017 (18.3 ng/m³) which was the first time the Target was been complied with at this site. As states above, this poor result was considered to be linked to problems with abatement plant in the Wall Colmonoy plan.

Below is a graph showing the pattern of Nickel concentration at different locations in the area including Tawe Terrace. While a general trend of reduction is apparent at all locations, a very different unstable pattern is apparent at the Tawe Terrace and is reflected in the pattern albeit to a lesser degree in the data collected from the leisure centre which is also believed to be affected by emission from the Wall Colmonoy site.

Nickel trends 2000 – 2018



In addition to the above reports, further work was carried out by National Physical Laboratory (NPL report)³ under instruction from Neath Port Talbot County Borough Council to determine the concentration of heavy metals in the PM10 fraction of ambient air (PM10 being particulate matter of aerodynamic diameter less than 10 µm) at the Pontardawe Leisure Centre monitoring site.

The investigation results showed that, at the leisure centre monitoring station, during 2018 the annual average was 20.2 ng m³, in exceedance of the Target Value (TV) (20 ng m³). In total there were twelve weekly nickel concentrations observed above the Fourth Air Quality Daughter Directive target value (TV) of 20 ng m³ for nickel, including the maximum weekly concentration of 170 ng m³ with the three most extreme events occurring at the end of May, end of June/start of July and mid/late October.

The report³ states that Information received from Wall Colmonoy (emission data supplied by wall Colmonoy April 2019) confirmed a number of issues with abatement that are likely to have contributed to these exceedances.

Overall during 2018, 23 % of nickel measurements were over the directive TV; 9 % were above the UAT (but less than the TV); 26 % were between the UAT and LAT; 42 % were below the LAT (The Upper and Lower Assessment Thresholds) of the EU Air Quality Directives

The report³ states that considering the concentrations of nickel in ambient air measured at the Leisure Centre site in the context of concentrations measured at other local monitoring sites and wind analysis data, it seems likely that emissions from the Wall Colmonoy plant contribute a significantly greater proportion of nickel levels measured at the Leisure Centre site than the Vale nickel refinery at Clydach. Information received from Wall Colmonoy confirmed there were issues with abatement that coincided with exceedances of the target value throughout 2018.

The reports goes on to state that in 2009 an air quality site was installed at Tawe Terrace to measure concentrations in the vicinity of the Wall Colmonoy works. The concentrations measured at Tawe Terrace in 2009 - 2018 were greater than those measured at the Pontardawe Leisure Centre. The estimated nickel emissions from Wall Colmonoy are based on the results of stack emissions tests, normally performed annually. In 2018, stack emissions testing for

all processes was performed in October, resulting in estimated annual emissions of 0.216 tonnes (216 kg). For comparison, the estimated emissions based on the annual stack emissions test in 2017 were 0.0977 tonnes (97.7 kg).

Stack emissions testing to monitor specific processes at Wall Colmonoy was performed in June and September 2018. The June tests monitored output from the Dalamatic baghouse filters, wet extraction systems and the central vacuum system. The results showed a reduction in emissions from the Dalamatic filters, but an increase from the wet extraction and central vacuum systems in comparison to 2017 levels. The test in September showed a significant reduction in emissions from the central vacuum system following a filter change in mid-July. By October, emissions from the wet extract system were much higher than those found at the test in June.

The report³ states that in addition to the Leisure Centre site, there are a number of other metals monitoring sites in the Tawe Valley. These sites are operated under the UK Heavy Metals Monitoring Network, and include Morriston Groundhog, Coedgwilym Cemetery, Tawe Terrace and Brecon Road. The highest nickel concentration of 57.5 ng m³ was observed at Tawe Terrace. The Leisure Centre experienced the second highest concentration (20.2 ng m³), followed by Coedgwilym Cemetery (12.4 ng m⁻³). Viewed in conjunction with the wind rose, it can be seen that these three sites are all nominally upwind of Wall Colmonoy, but for some periods of the year (~ 30 %) they are downwind. The concentrations are decreasing with distance from that source indicating that Wall Colmonoy is the likely source of these elevated concentrations. Emissions from the Vale refinery appear to have limited impact on measured concentrations at Tawe Terrace and the Leisure Centre despite the Vale refinery being nominally upwind of these sites. Brecon Road is nominally downwind of Wall Colmonoy, but at an elevated position compared to the Tawe Terrace and Leisure Centre sites. This may result in this site not encountering the emission plume.

From the above presented information (specifically the underlined sections), it is clear that the issues of emission from the Wall Colmonoy site is the results of poor management of the abatement systems, a matter that is under the control of the operator. It is apparent that each of the reported abatement system is able to achieve a low emission, should it been managed properly. This is different from a situation when the emission cannot be reduced even when BAT is applied.

Emission from the Wall Colmonoy Site

In 2018 DEFRA published two report^(1,2) on measures for 2016 regarding exceedance of the target value for Nickel in Swansea Urban area agglomeration zone (UK0027) and south wales (UK0041). These documents report the exceedance situation for 2016 reflecting the more recent assessment and updating the 2013, 2014 and 2015 report on measures

The first report⁽¹⁾ states that reported annual emissions for the Wall Colmonoy site increased from 24.23 kg yr-1 in 2015 to 95.37 kg yr-1 in 2016. Estimates of annual stack emissions are based on an annual stack test result, which is a snapshot of emissions and is dependent on the relative Ni content of the specific products that are being made or processed and the operation of the emission abatement equipment at the time of the emissions test.

DEFRA report⁽²⁾ states that the reported stack emissions for the Wall Colmonoy site increased in 2016 compared to recent previous years and a corresponding increase in the measured annual mean concentrations of Ni at Pontardawe Tawe Terrace was seen between 2015 and 2016.

The reports states that Significant work was undertaken by the regulator and site operator to understand and rectify the increase in emissions at the Wall Colmonoy site during 2016 and details of this action are provided in the Report on Measures for Swansea.

An action tracker was used to identify, prioritise and track possible improvements with further effort being put into maintenance activities. Stack test results showed raised nickel levels from one item of plant (a wet extractor system),

which was subject to maintenance, including: the pump was changed, metal particulate was cleaned out of the ducting that lead to the unit, the inspection frequency increased on this equipment and a new inspection window was installed. Improvements to this unit are likely to have made the biggest impact on ambient emissions.

The list of required and completed measures shows that most of the improvements were completed before end of 2015 with few completed in 2016 excluding two measures scheduled for later completion in 2018. These include two monitoring related measures, one for improvement of Workplace monitoring and another for ambient (external) monitoring, both to be completed in 2018 to help identify hotspots and use of results to identify and prioritise future improvements. Therefore apart from these two monitoring measures, which although may help identifying future improvements, they don't have any actual immediate effect on improving the emission there were no other proposed immediate measures. However as stated above, there was a significant increase in emission in 2016 (95.37 kg yr⁻¹).

The latter increase was described ⁽¹⁾ as not representative of emissions throughout 2016. It was identified that reported Ni emissions were based on stack tests undertaken while there was a failure in abatement equipment at the site and that this abatement failure is likely to have lasted for a few months during 2016. For the remainder of the year the Ni emissions rate would be expected to be lower than the reported emissions rate.

In 2017 the measured annual mean concentration of Ni at the Pontardawe Tawe Terrace site was 19 ng m³ i.e. below the Ni TV of 20 ng m³. According to these reports, this demonstrates that the action taken at the Wall Colmonoy site had a significant impact on Ni concentrations in the area and shows that when the abatement systems are operating correctly compliance with the Ni TV can be achieved.

Again, the same conclusion is made. If the abatement system was operated correctly, compliance with Ni TV can be achieved. However, further significant emissions were reported in 2018. It is clear that the failure is not associated with BAT not being adequate in reducing the emission and improving the air quality, it is the results of poor management, which contravene the conditions of the site's environmental permit. Further information on problems associated with the monitoring, contrary to the requirements of the permit were reported in the laboratory reports ⁽⁸⁻¹²⁾ where sampling points were not compliant with the appropriate British or equivalent standards (see appendix A for further information)

The site permit states the following:

Offences

Regulation 32 of the EPR Regulations defines the offences that may arise as a result of non-compliance with the regulations or this permit. You are advised to be familiar with this regulation since a person guilty of an offence could be fined up to £20,000 and/or be subject to imprisonment.

Enforcement

If the conditions attached to this Permit are not adhered to, then an enforcement notice may be served upon the operator. This notice will specify the contraventions and the steps to be taken to remedy the situation. It is an offence not to comply with such an Enforcement Notice.

There is a clear evidence that there have been more than one exceedance of the emission limits and that failure in achieving an acceptable level of emission is the results of poor management, contrary to the requirements of the permit environmental management system

Revocation

The enforcing Local Authority may revoke the Permit at any time. This will particularly be considered if fees are not paid or enforcement notices are not complied with.

Suspension

The Regulator has a duty to serve a suspension notice if it is considered that there is an imminent risk of serious pollution to the environment, whether or not there has been a breach of the Permit.

Table 1 below provides concentration and flow emission data sourced from annual reports ⁽⁸⁻¹²⁾ submitted by Wall Colmonoy to NPT council. The approximate annual emissions were estimated from calculation using the concentration and flow rates provided by Wall Colmonoy and assuming 260 days/year of emission with 7.5 operational hours/day. This may not be accurate representations, if the emissions time is not reflective of the site operational hours for the different processes from which the emission is released. However the estimated values are used here for illustrative purpose to show the temporal variation in the emission for each abatement system. In any case, although the estimated emission don't align with the values reported in DEFRA report ^(1,2) for the years 2015 and 2016 they are very close to the reported values in the NPL report ⁽³⁾ for the years 2017 and 2018.

As can be seen, the monitoring data shows variation in the emission and that in the year 2017, the emission was significantly lower than that in other years for each of the abatement systems indicating that the lower emissions are achievable with current abatement system but with better management which is unlikely to result in disproportionate costs to ensure that concentrations do not exceed the TV value.

Table 1

	2015 emission 19 –30/11/15			2016 10 –14/10/16; 25 – 26/10/16; 14/11/16			2017 23 –31/10/2017			2018 17–25/09/2018 & 24/10/2018			2019 30/07/2019		
source	Conc. mg/m ³	Flow m ³ /h	Emission kg/year	Conc. mg/m ³	Flow m ³ /h	Emission kg/year	Conc. mg/m ³	Flow m ³ /h	Emission kg/year	Conc. mg/m ³	Flow m ³ /h	Emission kg/year	Conc. mg/m ³	Flow m ³ /s	Emission mg/hour
A1034	0.02	6394.5	0.25	0.4	6372.5	4.97	0.04	6090.4	0.48	0.44	6024.2	5.17			
A1038	0.03	6287.5	0.37	16.48	6264.3	201.31	0.13	6308.9	1.60	0.04	5825.4	0.45			
A1041	<0.01	5296.1	0.10	4.45	4329.2	37.57	0.77	5604.8	8.42	<0.01	5927.8	0.12			
A1042	<0.01	6399.8	0.12	1.72	6403.2	21.48	0.04	5790.6	0.45	0.17	3353.1	1.11			
A1090	0.04	24039.7	1.88	0.15	19476.4	5.70	1.21	24492.8	57.79	0.39	22312.8	16.97			
A1251	0.11	4577.1	0.98	0.09	NR		NR	NR		0.27	4398.7	2.32			
A1273	0.02	17676.4	0.69	0.01	17715.4	0.35	0.01	17983.9	0.35	0.02	14498.9	0.57			
A1398	0.03	1041.8	0.06	0.16	1045.2	0.33	0.04	1065.5	0.08	0.01	1420.5	0.03			
A1433			0.00			0.00			0.00			0.00			
A1562	1.131	5118.2	11.29	4.392	5822.5	49.87	0.083	5520.1	0.89	18.2	5004.6	177.65	0.465	5067	4.29
A1574	0.04	6784.8	0.53	0.01	6162.7	0.12	0.06	6643.9	0.78	0.01	6734.9	0.13			
A1576	1.91	7129.9	26.56	0.01	7163.2	0.14	0.03	7234.6	0.42	0.02	7035.4	0.27			
A1583	0.4	791.4	0.62	1.6	1286.1	4.01	3.54	1366.9	9.44	0.31	1910.7	1.16			
A1586	0.01	41661.2	0.81	0.1	32667.5	6.37	0.01	30026.1	0.59	0.17	33623.3	11.15			

A1587	<0.01	22290.7	0.43	0.12	14222.9	3.33	0.01	10967.9	0.21	0.05	10984.6	1.07			
total emission	44.69			335.53			81.50			218.16					

The lab reports provided the above data stated that “All processes were confirmed as operational prior to any monitoring being undertaken. During the sampling regime all processes ran continuously with no unusual occurrences and no incidents reported by the operators. At least one batch was sampled during each test”. Further details on abatements systems and issues associated with their monitoring are provided in Appendix A.

As can be seen from the results presented in table 1 above, the fettling cut off saw (A1576) was the main contributor to the emission in 2015 followed by the atomising wet extraction (A1562) followed by atomising dry extraction (A1090). It is anticipated that this was the reason for the additional monitoring of A1576 carried out On 6/5/2016, earlier than the usual monitoring time carried out in October/November 2016.

In 2016, J3 Sprayweld (A1038) was the major contributor followed by atomising wet extraction (A1562) (followed by HVOF (A1041) , followed by HVOF (A1042) followed by the powder room (A1586), followed by the atomising dry extraction (A1090) followed by the central vacuum system (A1583) followed by fettling general (A1587), all emitting significantly greater than their emission in 2015.

The latter increase was however described ⁽¹⁾ as not representative of emissions throughout 2016. It was identified that reported Ni emissions were based on stack tests undertaken while there was a failure in abatement equipment at the site and that this abatement failure is likely to have lasted for a few months during 2016. For the remainder of the year the Ni emissions rate would be expected to be lower than the reported emissions rate.

Please note the lab note that “During the sampling regime all processes ran continuously with no unusual occurrences and no incidents reported by the operators “. It is difficult to understand why abatement failure would affect all these sources simultaneously (during one monitoring round).

In 2017, the major contributor was the atomising dry extraction A1090 followed by the central vacuum system (A1583) followed by HVOF (A1041) and J3 Sprayweld (A1038)

In 2018, the major contributor was the atomising wet extraction (A1562) followed by the atomising dry extraction A1090 followed by A1034 powder room (A1586)

From the above results, it can be clearly seen that emissions from abatement systems vary significantly across the years and that the highest emissions were from sources that can actually achieve significantly lower values as demonstrated in their performance in other years.

Considering the ability of these abatement systems to achieve significantly lower emissions, it is not clear why these points are still permitted the higher emission rate of 15 mg/Nm³ as BAT when they clearly can achieve lower concentration as demonstrated in some of their monitoring rounds at a time when they were reported in their monitoring reports to be to be fully operational.

Table 2 below shows the range of emission concentration each of the abatement systems has achieved from 2015 to date and their difference between the lower and higher concentration as a multiplier (the number of times the higher concentration is greater than the lowest). The highest one, coloured in reds, are the major contributor to the highest emissions and reported to have management /maintenance issues. The last column also shows the emission concentrations from the same abatement systems in 2017 when the air quality TV was achieved. It can be seen that they were not even at the lowest emission values and therefore is definitely possible to achieve. Further information on emission are provided in Appendix A

Table 2

source	Source description	Abatement system	min conc.	max conc.	multipliers	2017 emission
			mg/m ³	mg/m ³		mg/m ³

A1034	Nicrospray	Cartridge filter systems	0.02	0.44	22	0.04
A1038	J3 Sprayweld	Cartridge filter systems	0.03	16.48	549	0.13
A1041	HVOF	Cartridge filter systems	<0.01	4.45	445	0.77
A1042	HVOF	Cartridge filter systems	<0.01	1.72	172	0.04
A1090	atomising dry extraction	Dalmatic' dry bagless filtration system	0.04	1.21	30	1.21
A1251	Wire Spray Room		0.09	0.27	3	NR
A1273	Aqualine	Scrubber	0.01	0.02	2	0.01
A1398	Wax room	No abatement	0.01	0.16	16	0.04
A1433	laboratory					
A1562	Atomising wet	Scrubber	0.083	18.204	219	0.083
A1574	Rosler	filtration system	0.01	0.06	6	0.06
A1576	fettling cut off saw	filtration system	0.01	1.91	191	0.03
A1583	Central vac system	Nederman abatement	0.31	3.54	11	3.54
A1586	Powder Room	filtration system	0.01	0.17	17	0.01
A1587	Fettling	filtration system	<0.01	0.12	12	0.01

Putting Emission into Context

According to Neath Port Talbot council website (<https://www.npt.gov.uk/1503?pid=37>) this site is regulated against guidance note PG6/35 which was last updated in 2013. The emission limits set out in this document in Table 4.1, achievable using the BAT described in the document set a limit for Ni at 15mg/Nm³ (273 K, 101.3kPa and no correction for water vapour).

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/582717/metal-powder-and-other-thermal-spraying-processes-process-guidance-note-6-35-13 .pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/582717/metal-powder-and-other-thermal-spraying-processes-process-guidance-note-6-35-13.pdf)

The above guidance was said to be based on the state of knowledge and understanding, at the time of writing, of what constitute BAT for this sector. The note may be amended from time to time to keep up with developments in BAT, including improvements in techniques, changes to the economic parameters, and new understanding of environmental impacts and risks.

It states that "Reasonable steps will be taken to keep the guidance up-to-date to ensure that those who need to know about changes to the guidance are informed of any published revisions. However, because there can be rapid changes to matters referred to in the guidance – for example to legislation – it should not be assumed that the most recent version of this note reflects the very latest legal requirements; these requirements apply"

To our knowledge, since its last publication in 2013, there has been no update to the guidance and hence no changes to what has been considered than as BAT or to the emission limits.

This Guidance note PG6/35¹³ states that “In general terms, what are BAT for one installation in a sector are likely to be BAT for a comparable installation. Consistency is important where circumstances are the same. However, in each case it is, in practice, for regulators (subject to appeal) to decide what are BAT for each individual installation, taking into account variable factors such as the configuration, size and other individual characteristics of the installation, as well as the locality (e.g. proximity to particularly sensitive receptors”

The limit is applies to all sources of which the contribution of the metals and their oxides, where present should not be exceed the prescribed value of 15 mg/m³ for nickel.

Considering that the permit lists a large number of emission points and requires their annual monitoring for Nickel, it can be assumed that each of these processes and their exit points are emitting the metal. However their monitoring data show significantly lower concentration than 15mg/m³ and therefore clearly demonstrate that this limit is not based on BAT achievable limits.

Under paragraph 5.4 of this guidance “Higher hazard metals”, it states that “Near a few plants in the UK, levels of nickel in the air have been higher than the nickel air target value which comes into effect at the end of 2012. Plants with a higher annual throughput (100s of tonnes of nickel) may well need more efficient abatement than plant with a lower throughput of perhaps 10s of tonnes of nickel”.

It also stats the following;

- For smaller emissions, wet abatement will reduce emissions by perhaps 90%.
- For larger emissions, dry filters can provide a high level of reduction for particles at 0.5 micrometres and above.
- HEPA filters can provide further abatement, if needed

Various reports states that the Wall Colmonoy site uses approximately 500 tonnes of the metal each year to manufacture a variety of hard-wearing products

It is clear that the list of improvement measures requested and achieved in 2016 didn't seem to include changes or upgrade to a more effective filters such as the HEPA filter even for sources that have been identified to be major sources of emissions from the site, one of which is the atomising wet extraction which uses wet abatement.

The guidance¹³ states that “In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits”.

There is a provision in the guidance to exclude permitted process that is only responsible to a very small extent for an air quality problem, when the authority should not unduly penalise the operator of the process by requiring disproportionate emissions reductions”.

Also it excludes a standard that are not an EC Directive requirement, in which case then industry is not expected to go beyond BAT to meet it. Decisions should be taken in the context of a local authority's Local Air Quality Management action plan.

The Nickel target value is a requirement of an EC directive and is responsible for a significant extent of air quality problem as will be discussed below.

The guidance makes a specific reference to nickel stating that “The nickel air quality target value (20ng/m³ calendar year average) should be met by 31.12. 2012. All necessary measures not entailing disproportionate costs must be taken to ensure that concentrations do not exceed this value.

The guidance states that HEPA filters can provide greater control at small particle sizes but at a cost for energy to drive the greater pressure loss across the finer filter”. Based on emission data pattern, the current abatement systems should be able to achieve the TV for Nickel in the locality as was demonstrated in 2017. However, consideration should be given to the use of HEPA filters, being the current recommended BAT in the guidance. The emission from the site was associated with small particle sizes and therefore if HEPA filter are the most effective solution

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Appendix A

The lab report also provide the following information on abatement systems

Emission point	System-2015, 2018*	
A1398	No abatement	
A1090	Dalmatic' dry bagless filtration system	
A1034, A1038, A1041, A1042**	Cartridge filter systems	
A1587, A1576, A1574, A1586	filtration system	
A1273, A1562	Scrubber	
A1583	Nederman abatement	

*All abatement operating during monitoring. Also there was no mentioning of an abatement system for A1251 (wire spray room)

** include wire spray A1251 in 2015, 2016

Further the lab report states the following:

All stacks have only a single traverse from which to sample. This is a deviation from documented in-house methods ANC/S/6 & ANC/S/9. Sampling from a single traverse is a deviation from BS EN 15259 & BS EN 13284-1. As a consequence, the sample locations were non-compliant for flow measurements, particulates and particulate phase based measurements. The number of sampling points along the available traverse was increased as a consequence of this (where possible). It should be noted that the Wax Room (A1398), Aqualine (A1273) & Atomising Dry Extraction (A1090) ducts are horizontal in nature.

Powder Room (A1586)/ Rosler (A1574) / Fettling General (A1587): These exhausts do not have suitable ducting from which to sample, rather an open face. As such, the monitoring equipment was placed centrally at a single point, with the sampling nozzle facing into the open vent of the abatement during 'isokinetic' sampling (effectively a single point grab sample). Also, the ratio for velocities on Fettling General (A1587) was greater than 3:1. This is a deviation from documented in-house methods ANC/S/6 & ANC/S/9. These sample positions are not in compliance with Environment Agency & MCERTs requirements and as such we would recommend the installation of suitable ducting for next year's monitoring regime.

Nicro Spray (A1034): A nozzle <6mmdiameter had to be used. This is a deviation from documented in-house methods ANC/S/6 & ANC/S/9.

Wire Spray room (A1251): These stacks required a nozzle <6mm in diameter. This is a deviation from documented in house methods ANC/S/6 & ANC/S/9.

Atomising Wet Extraction (A1562): Only points 3, 4 & 5 along the traverse had swirl <15°, as such, these were the only points along the traverse that was sampled (Only points 3 and 4 in the 2015, 2016 and 2017 monitoring) .

A1038, A1041 (and A1042 in 2015, 2016 and 2017): These stacks required a nozzle <6mm in diameter. This is a deviation from documented in-house methods ANC/S/6 & ANC/S/9. Also, points 1 & 2 along the traverse (A1041 & A1042) had swirl >15°. As a consequence, these points were not sampled in 2015, 2016 and 2017. This is a deviation from documented in-house methods ANC/S/6 & ANC/S/9.

In the 2016 monitoring, during monitoring of the wire spray exhaust, only welding activities occurred. In the 2016 and 2017 monitoring, CW LEV 2 (A1398) :The measured velocity was below the minimum requirement of 5m/s and as such does not conform to the procedural requirements of the standard.

Appendix B

Air quality standard

The air quality standard of 20ng/m³ is a target value provided by European Directive 2004/107/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 adopted in Wales through their air quality standard regulations (2010).

The target values are based on BAT. See

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02004L0107-20150918&from=EN>

It states that

“ Scientific evidence shows that arsenic, cadmium, nickel and some polycyclic aromatic hydrocarbons are human genotoxic carcinogens and that there is no identifiable threshold below which these substances do not pose a risk to human health. Impact on human health and the environment occurs via concentrations in ambient air and via deposition. With a view to cost-effectiveness, ambient air concentrations of arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons, which would not pose a significant risk to human health, cannot be achieved in specific areas.

With the aim of minimising harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, of airborne arsenic, cadmium and nickel and polycyclic aromatic hydrocarbons, target values should be set, to be attained as far as possible.

With the aim of minimising harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, of airborne arsenic, cadmium and nickel and polycyclic aromatic hydrocarbons, target values should be set, to be attained as far as possible..

The target values would not require any measures entailing disproportionate costs. Regarding industrial installations, they would not involve measures beyond the application of best available techniques (BAT) as required by Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control and in particular would not lead to the closure of installations. However, they would require Member States to take all cost-effective abatement measures in the relevant sectors.

References

1. DEFRA. Report on measures for 2016 exceedance of the Target Value for Nickel in Swansea Urban Area agglomeration zone (UK0027) . December 2018
2. DEFRA. Report on measures for 2016 exceedance of the Target Value for Nickel in South Wales non-agglomeration zone (UK0041). December 2018
3. NPL REPORT ENV (RES) 001 MEASUREMENT OF HEAVY METALS IN PM10 AT PONTARDAWE LEISURE CENTRE IN 2018. REPORT FOR NEATH PORT TALBOT COUNTY BOROUGH COUNCIL. NPLML – COMMERCIAL. APRIL 2019
4. Neath Port Talbot County Borough Council 2016 Air Quality Progress Report. In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management Date (July, 2016).
5. Neath Port Talbot County Borough Council 2017 Air Quality Progress Report. In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management Date (July, 2017)
6. Neath Port Talbot County Borough Council 2018 Air Quality Progress Report. In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management. Date (July, 2018)
7. Neath Port Talbot County Borough Council, 2019 Air Quality Progress Report. In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management. Date (September, 2019)
8. 771108- Wall Colmonoy Annual Stack Report November 2015
9. 81062- Wall Colmonoy Annual Stack Report November 2016
10. Wall Colmonoy Annual Stack Report November 2017
11. 89070- Wall Colmonoy Annual Stack Report October 2018
12. 93102- Wall Colmonoy Annual Stack Report July 2019
13. Process Guidance Note 6/35(13) Statutory guidance for metal powder and other thermal spraying processes Revised: July 2013

Additional Information

I have extracted this section from reference 7 above. Reason for providing it is for us to understand the possible justification on which the council rejection was based. Policy EN8 might be the one.

The text in the paragraph 5.3.42 below EN8 box states that “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”.

It seems that not only development that contribute to causing damage or exacerbate the problem are rejected but also development that results in more people being exposed!. However I don't think this policy is applicable for our case as an alternative solution in the form of better and tighter regulation of the problem site is the only way forward to protect other affected people.

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.