

Compliance Assessment Report

Report ID:
CAR_NRW0032731

This form will report compliance with your permit as determined by an NRW officer

Site	Port Talbot Steel Works EPR/BL7108IM	Permit Ref	BL7108IM		
Operator/Permit holder	Tata Steel UK Limited				
Regime	Installations				
Date of assessment	22/06/2017	Time in	12:30	Out	14:30
Assessment type	Audit				
Parts of the permit assessed	1 Management; 2 Operations; 3 Emissions and Monitoring; 4 Information				
Lead officer's name	Cowie, Douglas				
Accompanied by	Broom, Mark				
Recipient's name/position	Fiona Abbott/ Environment Manager	Date issued	17/01/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
A1 - Specified by permit	A	
B1 - Infrastructure - Engineering for prevention and control of emissions	A	
B5 - Infrastructure - Plant and equipment	A	
C2 - General Management - Management system and operating procedures	A	
E1 - Emissions - Air	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G2 - Monitoring and Records, Maintenance and Reporting - Records of activity, site diary/journal/events	A	
G3 - Monitoring and Records, Maintenance and Reporting - Maintenance records	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	X	
	X	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.

A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,

O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0
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If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Site description

Tata Steel UK Ltd (Tata Steel) operates an integrated iron and steel works at Port Talbot, Neath Port Talbot. The site is permitted as an installation under the Environmental Permitting Regulations (EPR). Tata Steel has several defined industrial processes which are carried out sequentially across the installation to convert raw iron ores and coal to semi-finished (slab) and finished steel products (such as hot rolled, pickled and oiled, cold rolled and annealed steel). The permit also covers coke making and the reception, stockpiling and blending of raw iron making materials. Four other companies – Cambrian Stone, Harsco Metals, Runtech and ICL – are contracted to undertake their own permitted activities at the steelworks on Tata Steel's behalf.

Purpose of visit/assessment

To review compliance with the BAT-AEPLs* for coke ovens fugitive emissions (coke oven doors, tops and charge holes).

Benzo-a-pyrene – B[a]P – is a 'marker' Polycyclic Aromatic Hydrocarbon (PAH) compound which is used as an ambient air quality measure. We discussed local B[a]P monitoring results in the context of Tata's ongoing programme to minimise emissions from Morfa Coke Ovens.

The relevant permit conditions are listed under Sections 1.1, 2.1, 2.3, 3.1, 3.2, 3.5, 4.2, 4.3 and 4.4 of Tata's permit.

*BAT-AEPL: Environmental performance levels associated with Best Available Techniques (BAT), as defined by the published BAT Conclusions on industrial emissions for iron & steel production (2012)

Person(s) present

Tata Steel

Fiona Abbott
Jason Heatman
Andrew Townsend
Dean Vincent
Wayne Hoffrock
Joshua Cockings
Lloyd Bryant

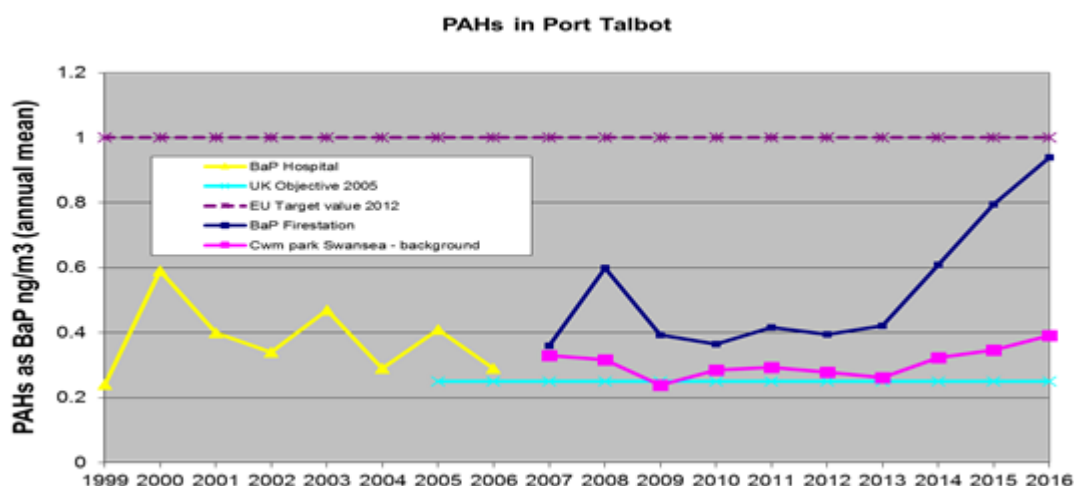
NRW

Mark Broom
Doug Cowie

Local air quality and B[a]P

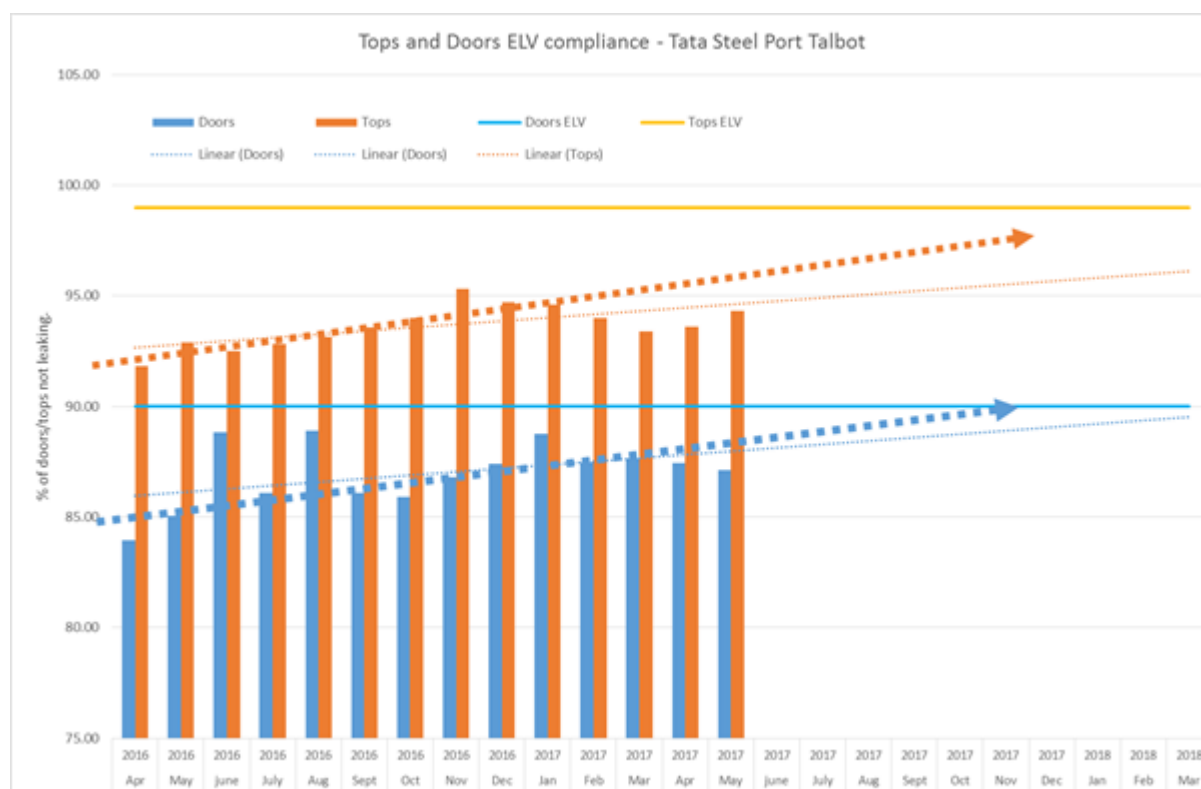
Ambient air quality is monitored for benzo-a-pyrene (B[a]P) at Margam Fire Station. The European Union sets an annual air quality target value of 1.00ng/m³ B[a]P. The graph below shows how the monitoring results at Margam Fire Station and its nominated background

monitoring site in Swansea have changed over the years.

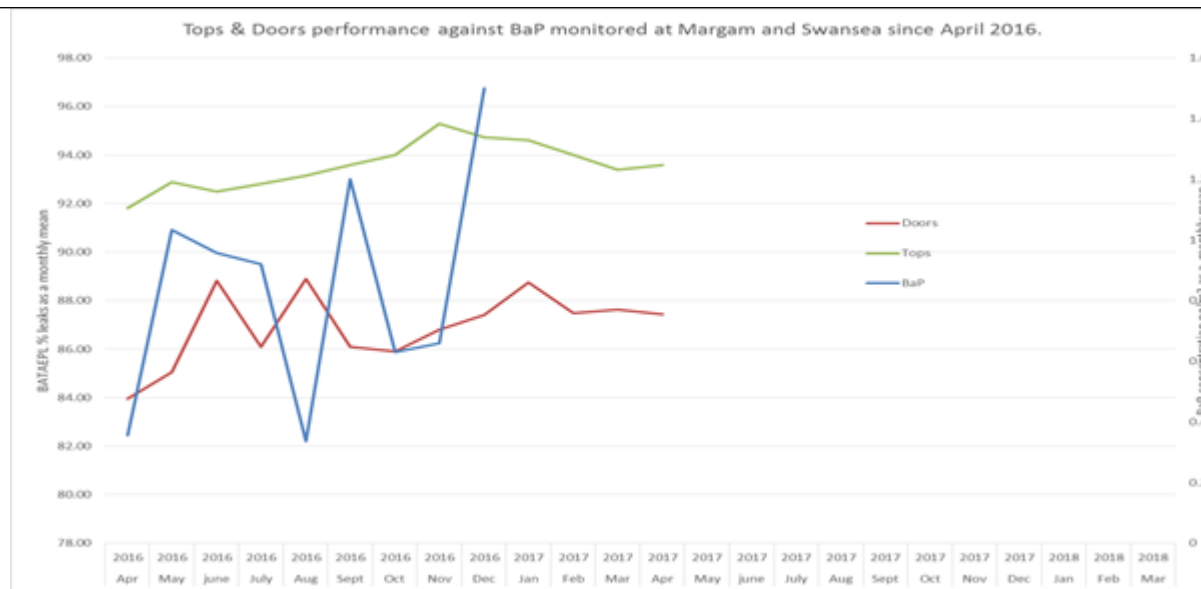


This data has been generated from monthly results that are published by Defra approximately 6 months after the end of each calendar year. So, in effect these results are between 18 and 6 months late depending on which month is of interest.

The graph below shows how Tata Steel's coke oven tops and doors (fugitive emissions) performance compares to the permitted BAT-AEPLs:



As the current levels of B[a]P at Margam Fire Station are of concern, the coke oven doors and tops performance has been compared to the reported levels of B[a]P:



Monthly performance figures for the doors and tops are now available and can be compared to the B[a]P results. When the B[a]P results for the financial year 2016/17 are compared with the corresponding performance figures for coke oven doors, the correlation is 0.1. A similar comparison of B[a]P results with tops performance produces a correlation of 0.33.

These comparisons could be carried out more frequently if the B[a]P results were made available more frequently e.g. on a monthly basis.

Coke ovens fugitive emissions

Since April 2016, Tata Steel has used a modified US EPA method for assessing fugitive emissions from its coke oven batteries. This new method is more stringent than the previous British Coke Research Association (BCRA) method and is directly comparable to the Iron & Steel BAT Conclusions and BAT Associated Environmental Performance Limits (BAT-AEPLs).

During this visit, we reviewed coke ovens fugitive emissions performance using the new modified US EPA method. Fugitive emissions from coke oven doors, tops (caps, ascension pipes and spigots) and from (coal) charge holes are assessed.

BAT-AEPL compliance – doors (BATc 46)

The BAT-AEPL for doors is 10% leakage rate or 90% non-leaking doors as a monthly mean value. Tata Steel Port Talbot is not yet fully in compliance with this limit and has submitted Schedule 5 notifications to NRW during 2017 for associated permit breaches. These breaches will be assessed in a separate quarterly CAR form and scored in accordance with NRW's Compliance Classification Scheme (CCS).

To improve coke oven door leakage performance, Tata Steel is:

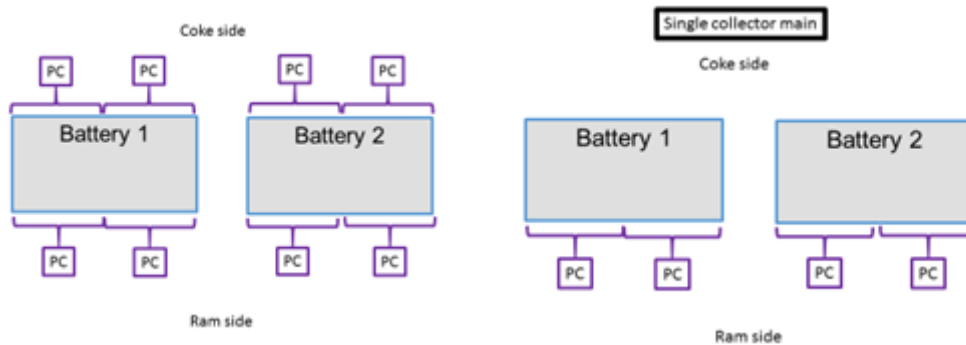
Renewing doors and door frames. Four doors have already been replaced and more are planned. Ten door frame replacements are planned over the next three months. Under normal operating conditions it is possible to undertake one door and one door frame replacement per week. To provide some context to any reported breaches, Tata Steel could include these figures in the relevant Schedule 5 notification.

Working with Hendersons (coke oven machinery supplier) to develop a leveller door cleaning device. Tata's interrogation of the door leakage results has shown that leaks from the smaller leveller doors constitute a high proportion of the overall leakage rate. Since the new device was fitted at Battery 1, the door leakage rate has shown a noticeable improvement and is currently meeting the BAT-AEPL. Battery 2 requires further work to improve its performance.

The leveller doors are situated on the ram (pusher) side only and allow the coal to be levelled once it has been charged into the oven. The photo below shows the leveller doors situated above the main door 'tightener' and between the oven numbers painted in white.



Improving the Coke Oven Gas (COG) collector main pressure controllers. At Port Talbot, there are eight pressure controllers (labelled 'PC' in the diagrams below) across both batteries and two COG collector mains. This arrangement requires 2 x ram side and 2 x coke side pressure controllers per battery. Port Talbot's layout is shown on the left compared with a single COG collector layout on the right.



Tata uses a combination of older, Askania controllers on the ram side and newer Kent controllers on the coke side. Replacement controller units are being considered as some of the current ones are the same age as the battery – 40+ years old – and more advanced technology has since become available.

We were shown live pressure charts displayed in the Control Room which showed status of both coke oven batteries. The charts proved that Tata's engineers have managed to optimise the COG pressure controls on Battery 1. In combination with the leveller door cleaner work, this has resulted in Battery 1 coming into compliance with the BAT-AEPL for doors. Battery 2's pressure controllers require further optimising to improve the leakage rate, which was demonstrated by the difference between its chart and that of Battery 1.

BAT-AEPL compliance – tops (BATc 46)

The coke oven tops BAT-AEPL is 99% not leaking (1% leakage rate) as a monthly mean for all tops sources – charge holes, spigots, spindles, goosenecks and caps. Tata Steel Port Talbot is

not in compliance with this limit and has submitted Schedule 5 notifications to NRW during 2017 for associated permit breaches. These breaches will be assessed in a separate quarterly CAR form and scored in accordance with NRW's Compliance Classification Scheme (CCS).

To improve coke oven tops leakage performance, Tata Steel is:

Undertaking an ongoing ascension pipe replacement programme across both batteries. 29 pipes have been replaced so far in 2017 at a typical rate of two pipe changes per week. 42 pipes were replaced in 2016, leaving approximately 200 changes left to do. To provide context to any reported breaches, Tata Steel could include figures confirming the number of ascension pipe replacements undertaken that month and year to date in the relevant Schedule 5 notification.

Trialling a new spigot maintenance programme. The performance of the resinous sealant previously used around the spigots is being critically assessed; Tata's engineers have concerns that the resin initially provides a good seal but then suffers from shrinkage. Other sealant materials are being considered.

Implementing a more flexible spigot jetting (cleaning) contract which has led to a regular jetting contractor presence on-site. More resources have recently been made available to the battery top teams and contractors.

Carrying out weekly spigot surveys and tracking spigot replacement progress against the targets set in Tata Steel's programme.

The BAT-AEPL for tops is challenging and requires a sustained commitment of resources from Tata Steel to bring its coke oven batteries into compliance.

BAT-AEPL compliance – charging (BATc 44)

The BAT-AEPL for visible emissions from coal charging is <30 seconds per charge as a monthly mean. The agreed method of assessing visible emissions is now a modified version of the US EPA 303 Method, which has replaced the previous BCRA method.

NRW can confirm that Mass Emission Factors (MEFs) and Pushing Emission Factors (PEFs) no longer need to be assessed or reported using form Form Coke DCM CF. The same form could be revised to provide an indication of monthly charging performance; this will be explored further at a future compliance visit.

Tata Steel must report any breaches of the monthly charging limit to NRW in the same way as any breaches of the limits for coke oven doors and tops.

To improve coke oven charging emissions performance, Tata Steel is:

Re-seating the charge holes on both coke oven batteries to ensure a good seal between the charge hole and the extendable nozzle on the coal charge car. Over time the intense heat and thermal stresses from a live coke oven battery can warp and distort the charge holes and their lids. Around 60% of charge holes have now been renewed and re-seated. The target is to re-seat all charge holes by the end of 2017.

Replacing the coal charging nozzles on the charge car. These nozzles – also known as 'telescopes' - are numbered 1 – 4. No.1 has been replaced and the other three are planned in during 2017/18. The replacement nozzles are made from stainless steel and have a better sealing system on the extendable pipe that drops down to make the connection between the charge car and the oven.

Replacing the 'lid lifters' which open and close the charge holes. Ensuring the charge hole lid is lifted and then re-seated properly is key to minimising emissions from charging operations. All four lid lifters at Port Talbot are slated to be replaced during 2017: No.1 & No.4 in Week 27 and No.2 & No.3 later this year.

The measures being taken to minimise emissions from charging are starting to have a positive and noticeable impact on this aspect of the coke ovens' environmental performance.

Other measures and future improvement plans

In addition to the improvements listed above, Tata Steel personnel have been networking with the European Coke and Ironmaking Congress (ECIC) now that the UK's pool of coke making expertise has greatly diminished. There remain only two working coke ovens in the UK – Port Talbot and Scunthorpe. The ECIC facilitates benchmarking against best practice and other coke ovens across Europe.

Tata Steel's engineers have also viewed examples in Germany with the aim of comparing Morfa Coke Ovens with other batteries of a similar age, design and mode of operation, and identifying the fugitive emissions controls which are most effective. Tata Steel is hoping to use this learning to enhance its programme of improvements at Port Talbot and ultimately to extend the working life of its coke oven batteries.

Tata Steel has a wider programme to extend the life of Morfa Coke Ovens for another 10 years (up to 2027). The current allocated spend is around £4M/year over the next 10 years from August 2017 onwards. One improvement option could be to use a single COG collector main instead of the two mains in use at present, which would reduce the maintenance needed on the COG collection system. This approach would necessitate a review of Tata Steel's safe systems of work to ensure that the safety and integrity of its batteries is not compromised.

Site inspection

On inspection of the ovens, the battery top appeared relatively flat and the re-seated charge holes were evident. One ram side Askania pressure controller was inspected and we observed its pressure control flap operating. The battery pressure charts in the Coke Ovens Control Room clearly showed a difference between Battery 1 (with refurbished pressure controllers) and Battery 2. The increased pressure variance of Battery 2 was clearly visible on the Control Room screens.

We were shown a replacement nozzle (telescope) that was ready for installation on the charge car. We also inspected a new replacement door and an old frame that had been removed. The old frame clearly showed evidence of distortion across the height of the oven, illustrating the effects of the intense heat and pressure it had been subjected to.

Conclusions and further actions required

Tata Steel has considered the opportunities that exist to improve the environmental performance of its coke ovens, measured by assessing fugitive emissions from coke oven doors, coke oven tops and coal charging activities. Tata needs to review its performance monthly – in line with the prescribed BAT-AEPLs – and report any breaches to NRW using a Schedule 5 notification. This has already been done for breaches of the doors and tops emission limits during 2017.

Any future Schedule 5 Part A notifications could benefit from the addition of a narrative explaining how many doors, door frames, ascension pipes etc. have been replaced during that month and over the year to date. This would provide a context in terms of the number of individual improvements that need to be made. NRW requests that this information is provided in any future notifications to clearly demonstrate what progress is being made.

NRW confirms that Mass Emission Factors (MEFs) and Pushing Emission Factors (PEFs) no longer need to be assessed or reported using form Form Coke DCM CF. The same form could be revised to provide an indication of monthly charging performance; this will be explored further at a future compliance visit.

Tata Steel must notify any breaches of the monthly charging limit to NRW in the same way as any breaches of the limits for coke oven doors and tops.

Improvements made to Battery 1 are starting to have a positive effect on its environmental performance. Battery 2 requires a greater amount of work to optimise its pressure controls and minimise fugitive emissions.

The BAT-AEPL for tops is challenging and requires a sustained commitment of resources from Tata Steel to bring its coke oven batteries into compliance.

The measures being taken to minimise emissions from charging are starting to have a positive and noticeable impact on this aspect of the coke ovens' environmental performance.

Tata Steel has a wider investment programme to extend the life of Morfa Coke Ovens for another 10 years (up to 2027). Learning from other European coke making plants is being gathered to allow benchmarking against best practice and coke ovens of similar age and design. NRW would like to see periodic updates about the life extension programme at the existing quarterly CAPEX interventions.

While it is clear to NRW that Tata Steel has committed to spending significant money at Morfa Coke Ovens, the costs involved e.g. ~£400K for charge car upgrades, ~£13K per door frame etc. could be communicated more widely to help show Tata's spend in this area and how they are tackling the work.

Presently there is a delay in accessing relevant monitoring data from the UK ambient air quality monitoring network which could be compared against monthly coke ovens performance data. The air quality data is published by Defra approximately 6 months after the end of each calendar year; it can therefore be between 18 and 6 months late depending on which month is of interest. For benzo-a-pyrene (B[a]P), which is a marker PAH compound, comparisons with Tata's performance could be carried out more effectively if the B[a]P results were made available more frequently e.g. on a monthly basis.

[ENDS]

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0032731**

This form will report compliance with your permit as determined by an NRW officer

Site	Port Talbot Steel Works EPR/BL7108IM	Permit Ref	BL7108IM
Operator/Permit holder	Tata Steel UK Limited	Date	22/06/2017

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	CCS Category	Action required/advised	Due Date
See Section 1 above			
G4	X	Any future Schedule 5 Part A notifications could benefit from the addition of a narrative explaining how many doors, door frames, ascension pipes etc. have been replaced during that month and over the year to date. This would provide a context in terms of the number of individual improvements that need to be made. NRW requests that this information is provided in any future notifications to clearly demonstrate what progress is being made.	31/03/2018
G4	X	Tata Steel must report any breaches of the monthly charging limit to NRW in the same way as any breaches of the limits for coke oven doors and tops.	31/03/2018

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language

If you would like this form in Welsh please contact your Regulatory Officer.