Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0032996

This form will report compliance with your permit as determined by an NRW officer					
Site	Port Talbot Steel Works	Permit Ref	BL7108IM		
Operator/Permit holder	Tata Steel UK Limited				
Regime	Installations				
Date of assessment	16/02/2018	Time in	11:00	Out	17:00
Assessment type	Audit				
Parts of the permit assessed	1 Management; 2 Operations; 3 Emissions and Monitoring; 4 Information				
Lead officer's name	Broom, Mark				
Accompanied by	Cowie, Douglas,Jeremy Walters				
Recipient's name/position	Claire Grainger/ Lead Environmental Engineer	Date issued	03/07/2018		

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	C3	3.2.1 Emissions of substances not controlled by emission limits
C1 - General Management - Staff competency/training	A	
C2 - General Management - Management system and operating procedures	A	
F3 - Amenity - Dust/fibres/particulates and litter	X	
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	
H1 - Resource Efficiency - Efficient use of raw materials	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	**1**	**Total compliance score** (see section 5 for scoring scheme)	4

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

This intervention focused on the Sinter Plant, Coke Ovens and fugitive dust management and control at Port Talbot steelworks. NRW has initiated a targeted programme of compliance interventions focusing on these issues.

NRW has received an increasing number of complaints about dust and emissions from the steelworks during 2017. Tata Steel continues to notify us about breaches of the permitted emission limit values (ELVs) for dust at the Sinter Plant main stack (A1) and fugitive (visible) dust emissions from Coke Oven Doors and Tops (A54). These ongoing ELV breaches and potential fugitive dust emissions from raw material storage and handling are of concern to NRW.

A site inspection was undertaken at the raw material stockyards control tower.

This report contains conclusions from our targeted compliance intervention and inspection programme between August 2017 and February 2018.

NRW presented information regarding Polycyclic Aromatic Hydrocarbons (PAHs) and local monitoring data for the indicator PAH compound Benzo-a-pyrene (B[a]P).

Tata personnel also provided a quarterly update on the Capital Expenditure (CAPEX) environmental improvement projects which are ongoing at Port Talbot steelworks. Some of these projects have introduced or are introducing plant improvements and upgrades which are necessary to comply with the Industrial Emissions Directive and the Best Available Techniques Conclusions (BATc) for the Iron and Steel industry sector.

The relevant permit conditions are listed under Sections 1.1, 1.2, 1.3, 1.4, 2.1, 2.3, 3.1, 3.2, 3.5, 4.1, 4.2, 4.3 and 4.4 of Tata's permit.

Person(s) present

Tata Steel
Fiona Abbott
Claire Grainger
Michael Launder

Andrew Townsend
Tom Watson (Sinter Plant only)
Darren Isaac (Sinter Plant only)
Jeff Lugg (Sinter Plant only)
Cerith Gill (Sinter Plant only)
Gethin Jones (Sinter Plant only)
Rachel Lloyd (Sinter Plant only)
Kevyn Bevan (Sinter Plant only)
Wayne Hoffrock (Coke Ovens only)

NRW
Mark Broom
Doug Cowie

Sinter plant

The Sinter Plant prepares, blends and heats raw materials for use in the blast furnaces. It has three permitted emission points:

1. Sinter plant main stack (A1)
2. Sinter plant secondary de-dust stack (A2)
3. Sinter plant mixing and rolling drum stack (A3)

Our programme of targeted inspections has focused on emission points A1 and A2 and ongoing non-compliance with the ELV for dust (particulates) at emission point A1.

During this intervention the following topics and issues were considered:

Sinter main stack (A1)

- North Electrostatic Precipitator (ESP) fan impellor defects. Current fans repaired and new fans on order
- Fans are being run at reduced speeds (~800rpm) to reduce stress on the impellors
- New fan motors are being sourced. Alignment errors found with drive bearings; possible influence on resonance and vibration issues
- March 2018 for fan motor and bearing repairs and replacements
- Communicating the mode of operation (single or dual fan) to NRW
- 'Double-dome' valve reliability poor. Trial of rotary valves with ceramic components which also offer energy efficiency benefits
- ESP power field losses and split field performance issues (see below)
- Isolation of final ESP power field: engineering options
- Optimisation of ESP dust rapping system (see below)
- Influence of chloride on waste gas system performance (see below)
- Influence of sinter strand temperature on waste gas system performance (see below)
- Continuous Emissions Monitoring System (CEMS): extra monitors being considered before and after ESPs to assess performance
- Dust suppression system links to sinter control and PI system
- Future maintenance regime and duration of stops
- Compliance with permitted ELV (40.00mg/m3 as a daily mean)
- Content of future Schedule 5 Part A & Part B notifications

Sinter secondary de-dust stack (A2)

- ESP efficiency monitoring and analysis
- Application of secondary current measurement (corona around power fields)
- Ducting repair work

- Continuous Emissions Monitoring System (CEMS): extra monitors being considered before and after ESP to assess performance
- Future maintenance regime and duration of stops
- Compliance with permitted ELV (30.00mg/m3 as a daily mean)
- Content of future Schedule 5 Part A & Part B notifications

Sinter plant CAPEX projects - ongoing

- Sinter control system upgrades and enhancements
- Electrostatic Precipitator (ESP) optimisation using empirical data
- ESP power field investigations, modifications and repairs
- Evaluation of ESP performance in partnership with ESP tech supplier
- Commissioning of lignite-lime injection system
- Wind main refurbishments and repairs
- Sinter conveyor upgrades and repairs
- Treatment and recycling of sinter 'reverts' using hydrocyclone technology
- Cooler repair and refurbishment work

Sinter plant CAPEX projects – planned

- Sinter secondary de-dust ESP replacement (planned bag filter in 2020)
- Longer-term: sinter main stack ESP replacements

CAPEX comment and compliance assessment

In this report we have consolidated our findings from this intervention and three previous targeted sinter plant interventions in 2017.

It is clear to NRW that the sinter main stack ESPs continue to encounter power field failures (North and South ESP), resulting in reduced dust abatement efficiency. This disruption limits the effectiveness of 'power-off' dust rapping. It was not clear to NRW if power-off rapping was being used at either ESP. Blockages and dust build-ups within the ESP hoppers and conveyors have also hampered the ongoing CAPEX work. Understanding the distribution of these failures and their impact on releases from A1 will be part of the solution to this complex issue. Only then can effective optimisation work be undertaken based on reliable and continuous ESP operation.

Also, it is critical that Tata Steel focuses on main stack ESP reliability before proceeding further with the lignite-lime commissioning project. Tata's engineers are focusing on getting the North ESP fixed first, but July 2018 may be the earliest opportunity to tackle the ESP field issues in earnest. At the time of inspection, we confirmed that this timescale was not acceptable to NRW and Tata Steel must prioritise this work. One approach could be to operate in single-fan mode allowing sinter production to continue at a lower rate while one ESP is offline. Based on current emissions data at A1, the priority from our regulatory perspective is getting dust (particulate) releases back into compliance.

Significant work has been put into refurbishment and repair of the large wind mains on either side of the sinter plant, which has reduced air ingress into the system. The wind mains are subject to continued abrasion and corrosion because of the nature of the sinter waste gases, resulting in repairs somewhere on the system at any one time. NRW recognises the scope of this work and its associated challenges.

For the secondary de-dust system, Tata Steel is considering a modular bag filter constructed alongside the existing ESP. This would be installed by April 2020. Tata could consider future proofing the bag filter by designing in supports for additional modules that could be retrofitted. This approach has been used at the BOS Plant.

Finally, we feel that there is value in reviewing the by-products and reverts currently used within the sinter blend. It is known that high chloride levels can adversely affect ESP performance. Tata Steel's data is showing deterioration when blast furnace flue gas fines (reverts) are added to the sinter blend, although there are some abnormalities in Tata's data that require further study. Temperature control at the sinter strand is proving an equally important factor; maintaining design temperatures of 140 - 160°C has resulted in optimum ESP performance.

The new hydrocyclone should allow chloride 'washing' for certain materials, but in the meantime lower chloride reverts e.g. Dorr Pond residues could be directed without treatment to the sinter plant. Tata Steel should critically review high-chloride material streams e.g. blast furnace flue gas cleaning residues, ESP dust and assess whether there are alternative recycling options elsewhere at the steelworks.

Continued notified exceedances (breaches) of the permitted ELVs for particulates at emission points A1 and A2 in 2017/18 have been assessed and scored in accordance with NRW's Compliance Classification Scheme (CCS). This assessment is conducted on a quarterly basis and is recorded in separate CAR forms.

Tata Steel has applied to extend the previously permitted derogation against the particulates (dust) ELV at A2 (sinter de-dust: 30.00mg/m3). This derogation extension has been assessed by NRW in permit variation application V016 which was issued on 26 June 2018. The previous permitted limit of 50.00mg/m3 as a daily mean will apply for the duration of the derogation at A2. Exceedances of the 50.00m3 ELV will need to be notified in the normal manner using the template in Schedule 5 of the permit.

NRW is aware of a strategy used by the Environment Agency (EA) in response to similar sinter plant ELV breaches at Scunthorpe steelworks. The EA have used an EPR Regulation 61 Information Notice requiring information from the operator in respect of sinter plant abatement system performance and improvement plans. An Enforcement Notice (EPR Regulation 36) has subsequently been used to formally set a timescale within which the improvement plans need to be completed.

NRW is considering this approach in response to the ongoing sinter plant issues at Tata Steel Port Talbot. We will also consider its applicability to ongoing fugitive releases and exceedances at the Coke Ovens.

Coke Ovens

Morfa Coke Ovens heats coking coals in the absence of oxygen to produce high-quality coke which is used at the sinter plant and the blast furnaces. Coke Oven Gas (COG) generated within the ovens is purified and used as a fuel across the steelworks.

At Port Talbot there are two batteries of 42 ovens each and ten permitted emission points:

1. Morfa Coke Oven batteries (A54)
2. Morfa main stack (A55)
3. Ministerstein coke-side fume hood (A56)
4. Ammonia incinerator (A57)
5. Secondary coal crusher stack (A58)
6. Coke Oven Gas (COG) triple flare stack (A59)
7. Coke quench tower (old) (A60B)
8. Coke quench tower (new) (A60B)
9. COG collecting main bleeder valves (A61)
10. COG flare stack (A67)

Our programme of targeted inspections has focused on emission point A54 and ongoing non-compliance with the ELVs for fugitive (visible) emissions from coke oven doors, tops and charging

activities.

During this intervention the following topics and issues were considered:

Coke oven doors

- Door and door frame replacement programme
- Small (leveller) door jetting and cleaning options. Design process for automated, retrofitted solution continues
- Increased oven charging weights noted on ovens which have had door replacements
- Refurbishment and upgrade of oven pressure controllers: ongoing
- Dates of future planned maintenance stops
- Compliance with permitted ELV (10% leakage / 90% no leakage)
- Comparison of Battery 1 v Battery 2 environmental performance. Battery 1 compliant with ELV in Dec 2017. Battery 2 continues to improve.
- Content of future Schedule 5 Part A & Part B notifications

Coke oven tops

- Sealing and re-sealing of ascension pipe and spigot joints
- Recycled coal tar pitch (sealant) remaining effective
- Ongoing renewal of ascension pipes. 79 done since Jan 2017
- Winter weather restrictions on tops work programme e.g. high winds
- New work schedule during night-time led by shift manager
- Compliance with permitted ELV (1% leakage / 99% no leakage)
- Comparison of Battery 1 v Battery 2 environmental performance
- Content of future Schedule 5 Part A & Part B notifications

Coke oven charging

- Replacement and upgrade of charging ‘telescope’ nozzles: 3 done, 1 left
- Re-seating of oven charge holes: ongoing
- Renewal of charging ‘lid-lifters’: ongoing
- Compliance with permitted ELV (<30 seconds visible dust per charge)
- Requirement to notify NRW about breaches of the charging ELV
- Content of future Schedule 5 Part A & Part B notifications

Other matters

- Oven cross-wall thermal profiles illustrating positive effects of flue repairs
- Oven gas tracking, coal carbonisation and frequency of ‘black pushes’
- Collation and submission of monthly black push data to NRW (2015-17)
- Coke Oven By-Products Plant: Strong liquor tank and No.1 coal tar tank being serviced/refurbished. COMAH interface with EPR permit requirements

Coke Ovens CAPEX projects - ongoing

- Morfa Coke Ovens Life Extension project
- Operational standards initiative: ‘Unleash & Engage’ 14-week course
- Coke oven gas flue refurbishment/repair work
- Ram-side coke spillage handling system (No.2 ram)
- Coke-side fume extraction system (Ministerstein) hood and ducting upgrades
- Planned automation of coke pushing

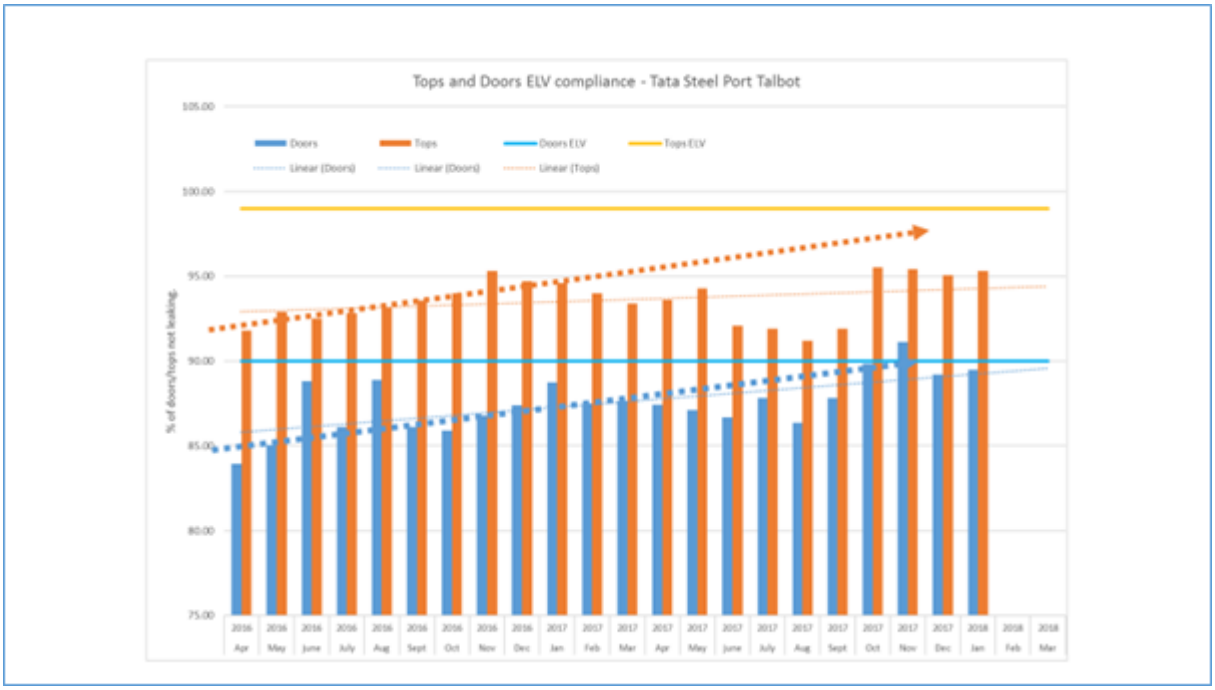
Coke Ovens CAPEX projects – planned

- Vacuum system for charging machine
- Coke-side coke spillage handling system
- Coke car automation
- New stacker-reclaimers at coal yards
- Z-seals (spring sealing) coke oven doors: feasibility study
- Ram-side fume extraction system: feasibility study

CAPEX comment and compliance assessment

In this report we have consolidated our findings from this intervention and three previous targeted coke ovens interventions in 2017.

Tata Steel is making steady progress towards compliance in relation to fugitive emissions from coke oven doors. This is reflected by the chart below:



The chart shows that Morfa Coke Ovens came into compliance with the ELV (BAT-AEPL) for doors in November 2017. Improved performance has been attributed to the effectiveness of the ongoing leveller door cleaning programme and the flue gas refurbishment and repair work in the galleries underneath the ovens. Gradual replacement of older doors and door frames is also contributing to fewer leaks.

Fugitive emissions from coke oven tops has proved a more challenging issue. This is in part due to the large number of individual pipes, joints and seals which need attention, but also because of operational difficulties such as poorly performing seals and windy winter weather restricting crane lifts and movements. The difficulties of undertaking work on live coke ovens also restricts how quickly Tata Steel can progress this improvement programme.

The situation for (coal) charging emissions has positive and negative aspects. Good progress has been made to renew and upgrade the infrastructure associated with charging e.g. telescope nozzles, charge holes and lids. However, charging performance appears to have deteriorated in 2018 with regular Schedule 5 notifications to NRW. This apparent deterioration in environmental

performance will need to be examined further during our next inspection at Morfa Coke Ovens.

NRW has started to review 'black push' data for the coke ovens. Coal which has not been fully carbonised can generate increased particulates and dark fumes when it is pushed by the ram into the coke car, an event known as a black push. This phenomenon seems to affect ovens at battery ends more than those towards the centre. The battery ends tend to experience greater thermal variation and consequently distortion because they receive less mutual heat from neighbouring ovens. This distortion can damage the gas flue system under the ovens, resulting in heating imbalances and poorer carbonisation rates. Continued focus and attention on the battery ends and gas flues will be necessary to maintain coke yields from battery end ovens and minimise black pushes.

It is clear from the CAPEX discussions that Tata Steel has committed significant resource to its Morfa Coke Ovens life extension project and the ongoing work to minimise fugitive emissions. Further CAPEX investment is planned as outlined earlier in this report. NRW welcomes the opportunity for regular discussion with Tata Steel; the value of early dialogue for projects with long lead-in times should not be underestimated.

Continued notified exceedances (breaches) of the permitted ELVs for doors and tops emissions at emission point A54 in 2017/18 have been assessed and scored in accordance with NRW's Compliance Classification Scheme (CCS). This assessment is conducted on a quarterly basis and is recorded in separate CAR forms.

Tata Steel is notifying NRW of any exceedances of the permitted ELV for charging emissions at A54. This information is being included with Schedule 5 notifications for doors and tops. Any charging exceedances have been assessed and scored in accordance with our CCS.

Future Schedule 5 Part A notifications should include an expanded narrative outlining how many door frames, spigot joints, ascension pipes, charge holes etc. have been repaired or upgraded by Tata Steel. The inclusion of these running totals would add context and better explain the scope of work necessary to deal with ongoing exceedances at A54. Alternatively, an updated Part B notification should be submitted at least quarterly to formally present this information. NRW has requested this previously but updated Part A / Part B information for the coke ovens has not been forthcoming. Any relevant Schedule 5 notifications from 1 August 2018 onwards must contain this information to avoid additional permit non-compliance (Condition 4.3.2).

NRW will consider the applicability of the information and enforcement notice approach outlined for the sinter plant (above) to ongoing ELV exceedances at the Coke Ovens.

Fugitive dust management: raw material stockyards

During this targeted inspection we examined the techniques and controls employed at the raw material stockyards. We visited the stockyards control tower which offers a good view of these areas.

We considered the following topics and issues:

- Fugitive dust suppression: application of water and latex sprays on stockpiles
- Fugitive dust suppression: water bowser and road sweeping routes
- Fugitive dust suppression: stockyards tower camera/CCTV system
- Raw material movements, transfers and stockpile workings
- Steelworks ambient air quality monitoring network and PI system links
- Haul road speed limits and enforcement
- Mechanical loading of fluxes and other sinter blend additives

The photos below show:

1. View north towards flux storage bays and revert (by-product) stockpiles
2. View east across sinter stockyards towards blast furnaces and sinter plant
3. View south-east across Yard Zero (by-product reclamation and pelletising). Note camera tower position at right of photo
4. View south towards ore/pellet/ore concentrate stockyards and BOS slag stockpile

The stockyards tower camera system has been upgraded and now offers high-resolution live footage of individual activities, vehicle movements and fugitive emissions.

At the time of inspection, no significant dust lift-off was noted within the stockyards and from haul roads, although it had recently rained. We noted dark emissions from the direction of Morfa Coke Ovens which may have been black pushes (see above).

Compliance assessment

In this report we have consolidated our findings from this intervention and three previous targeted fugitive dust interventions in 2017.

Condition 3.2.1 states:

3.2.1	Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

On 4 August 2017 we inspected the screens and the dust (foam) suppression system application points at the blast furnace ferrous stock house screens (see **CAR_NRW0032992**). On inspection we found that while the dust suppression system was operating at both stock houses, foam was not being consistently applied at all vibrating (sinter) screens. This situation increases the potential for fugitive dust emissions from this location.

Based on our inspection, we could not confirm the operator (Tata Steel) was taking all appropriate measures to prevent or minimise fugitive emissions from its permitted operations and has not fully complied with Condition 3.2.1. **One Compliance Classification Scheme (CCS) Category 3 score** has been recorded in response to this non-compliance. Tata Steel needs to ensure that foam is applied consistently at the ferrous stock house screens to suppress dust and minimise fugitive emissions from this part of the steelworks.

NRW is interested to hear the outcome of Tata Steel's trial using water sprays with atomising nozzles instead of foam on conveyor 1027. The results should be communicated to the regulator during a future compliance inspection.

During our visit on 23 November 2017 we observed sinter being stockpiled and mechanically loaded during a furnace and highline conveyor stop. The sinter loading height i.e. the drop from shovel to dump truck was good with minimal dust lift-off evident.

Tata Steel should continue to develop telemetry links between the dust (foam) suppression systems across the heavy end and the steelworks PI data system. It has been encouraging to see this area of work develop during 2017 and the ability to automatically trigger alerts in response to dust suppression system faults is welcomed. This should allow more rapid intervention and shorter system downtimes.

The ongoing sinter cooler conveyor issues and breakdowns are of concern. The cooler has previously been identified by NRW as an area with the potential to generate fugitive dust emissions. We will need to regularly review the status of the cooler and any rolling repair programme leading up to more substantial CAPEX repairs and refurbishments before October 2020.

When working stockpiles of stored raw materials and fines, Tata Steel should avoid exposing unsealed (un-latexed) working faces to the prevailing westerly winds. Doing so increases the likelihood of dust/fines lift-off and deposition elsewhere.

NRW welcomes the opportunity to view iron being tapped from No.5 Blast Furnace on 3 October 2017. We observed a clean 'tap' following a period of careful adjustment to the taphole drilling process. It was clear during the visit that cast house controls and procedures were subject to a review and the use of flow diagrams was being increased among cast house personnel to facilitate learning and development. This is an area NRW will need to revisit at a later date to measure progress.

Following our visit to the stockyards, NRW feels that a wider review of legacy stockpiled iron and steelmaking by-products and wastes is necessary. We have covered this topic during other compliance inspections with Tata Steel and its contractors. Some stockpiles remain substantial and increase the potential for wind-borne fugitive dust emissions from the steelworks. During our planned review, Tata Steel (and contractors) will need to demonstrate all appropriate measures are being taken to minimise dust emissions from these stockpiles. This can be considered in the

context of the relevant works area Air Quality Management Plans (AQMPs).

Other matters

Polycyclic Aromatic Hydrocarbons (PAHs) in air

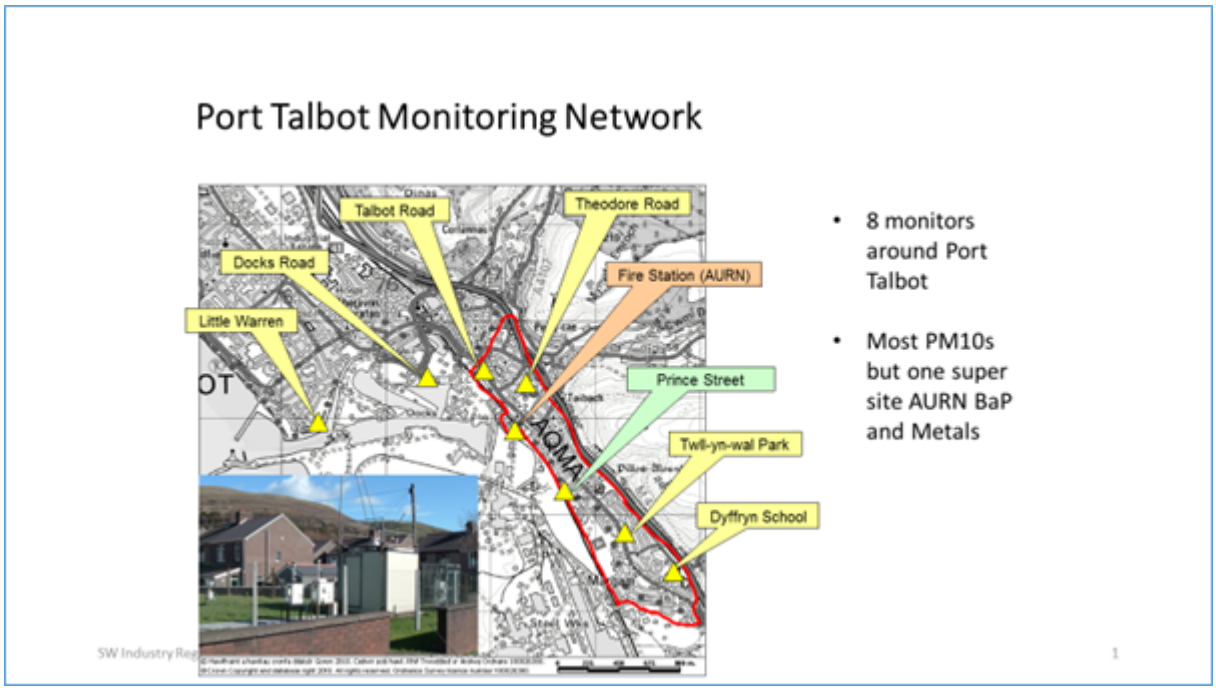
NRW presented information regarding Polycyclic Aromatic Hydrocarbons (PAHs) and local monitoring data for the indicator PAH compound Benzo-a-pyrene (B[a]P).

The PAH results for the monitoring station at Margam Fire Station have been increasing year on year until 2017. 2015 and 2016 saw levels of B[a]P – the indicator PAH compound – above the 1.00ng/m3 annual mean target value within residential areas.

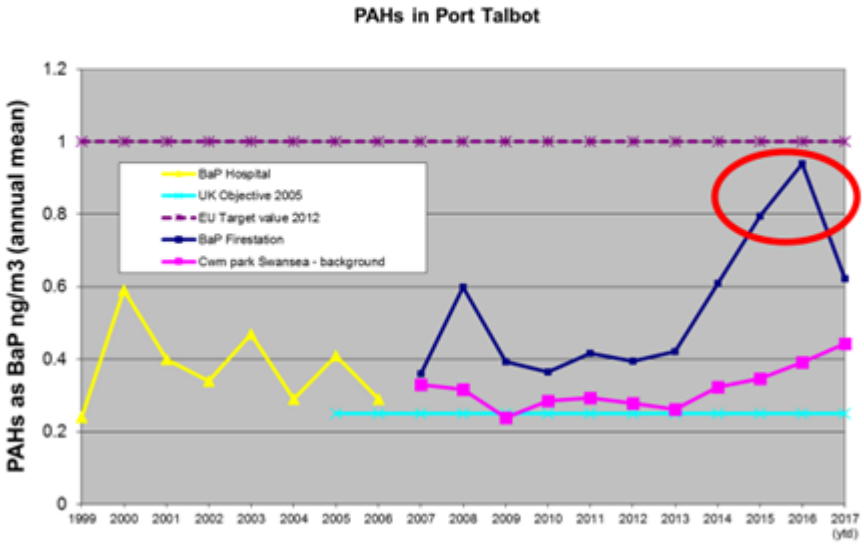
The exceedances of the B[a]P target value in 2015 and 2016 were reported to Europe by Welsh Government and DEFRA. Once NRW is possession of the annual Pollution Release & Transfer Register (PRTR) data for the steelworks, we can compare this with the split of B[a]P releases across various sources at the steelworks e.g. coke ovens and sinter plant. We will model these releases and reconcile them with the measured Fire Station data to identify any predicted B[a]P failure of the target value in 2017.

NRW now receives Fire Station B[a]P data at least quarterly. This data is being compared with coke ovens tops, doors and black push data but our initial work does not show any clear correlations. However, it does show encouraging, positive trends in B[a]P and doors emissions. More recently the results for tops emissions are showing improvement compared to previous years.

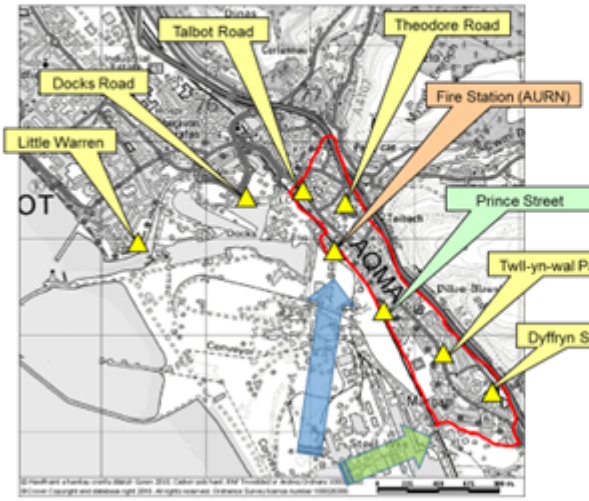
NRW will use a modified Short-Term Action Plan (STAP) approach to track B[a]P results in 2018 (see line chart in slide 8 below).



BaP Port Talbot



AQ modelling reconciliation



- Model BaP sources to the AURN
- Compare modelled output with BaP measurement
- Adjust the modelled output with the reconciliation data and
- See what the reconciled modelled output is at the nearest domestic dwellings
- If >1Ng/m^3 report to DEFRA and the EU if < 1 ng/m^3 no reports needed.

BaP 2015 modelled and reconciled BaP

3.2 Figure 1 shows the predicted annual average B[a]P concentration contours (ng/m^3), the filled black triangle indicates the location of Margam monitoring site.

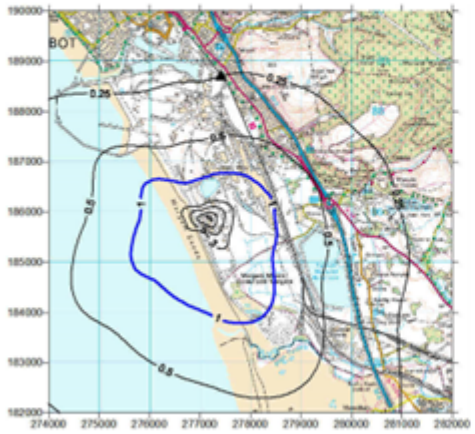
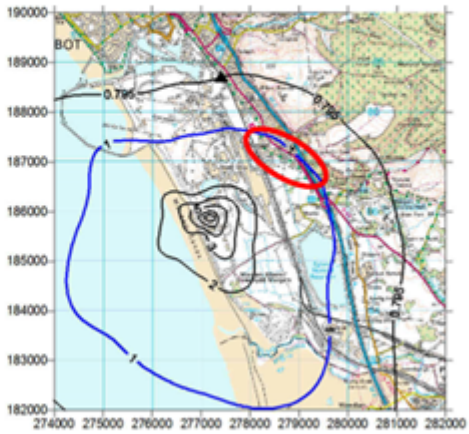
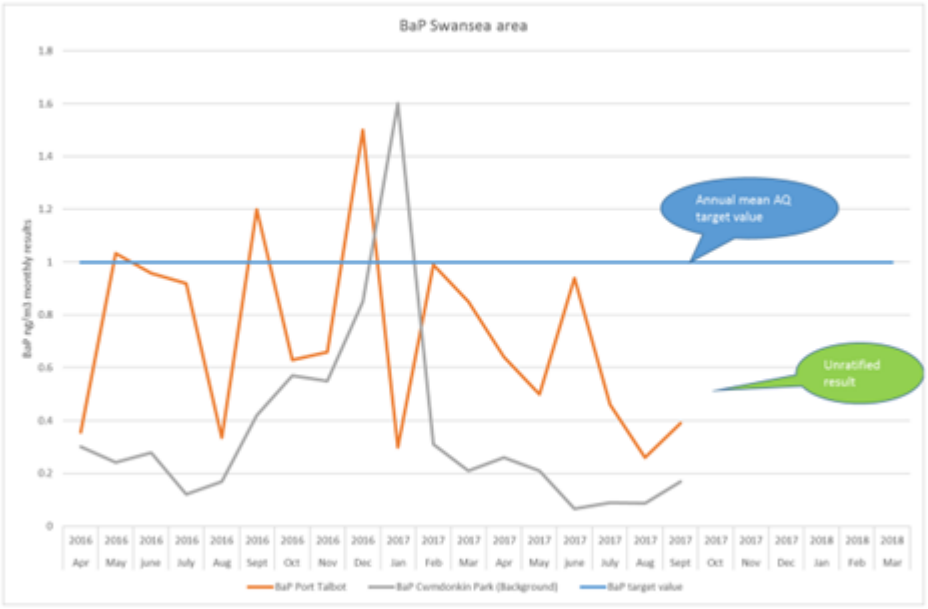
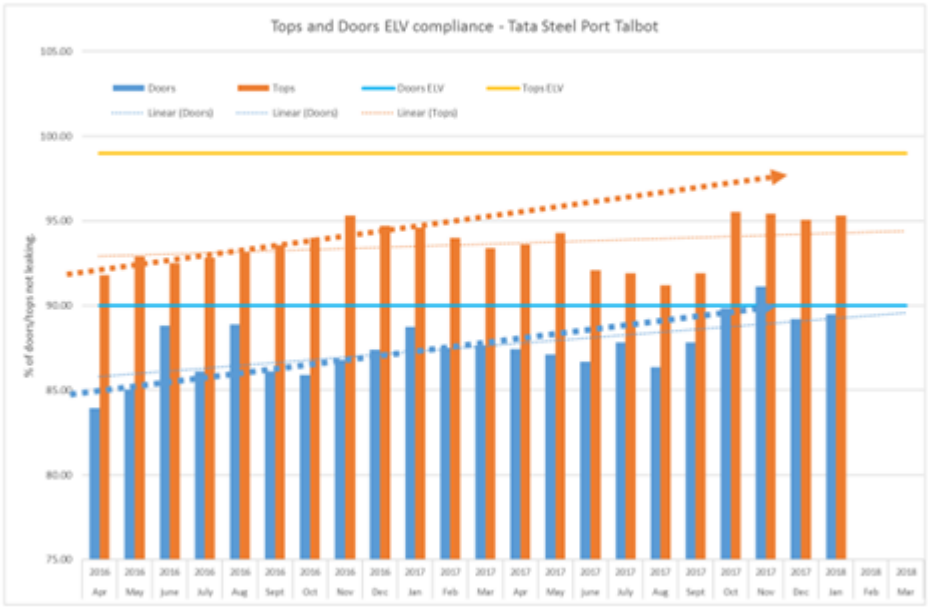
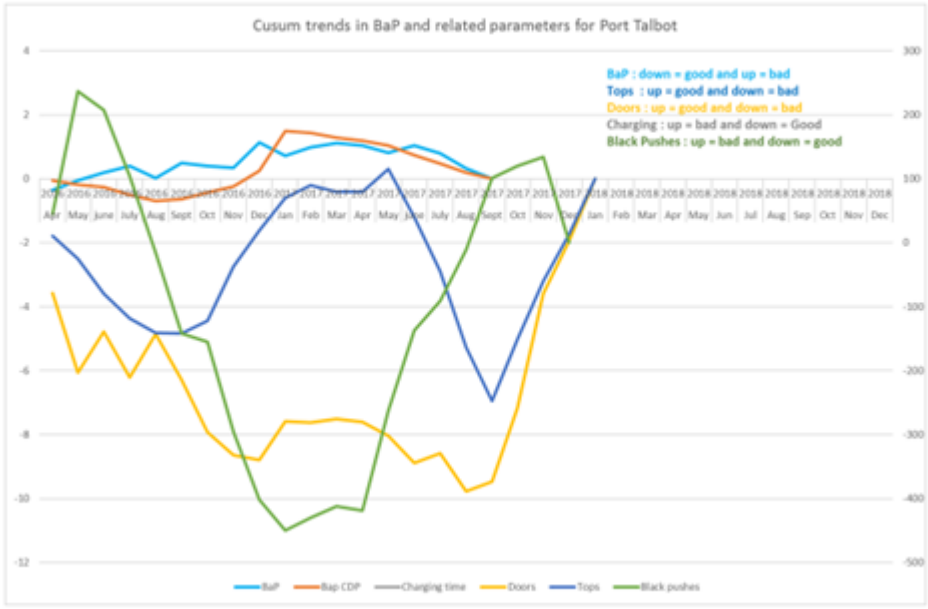


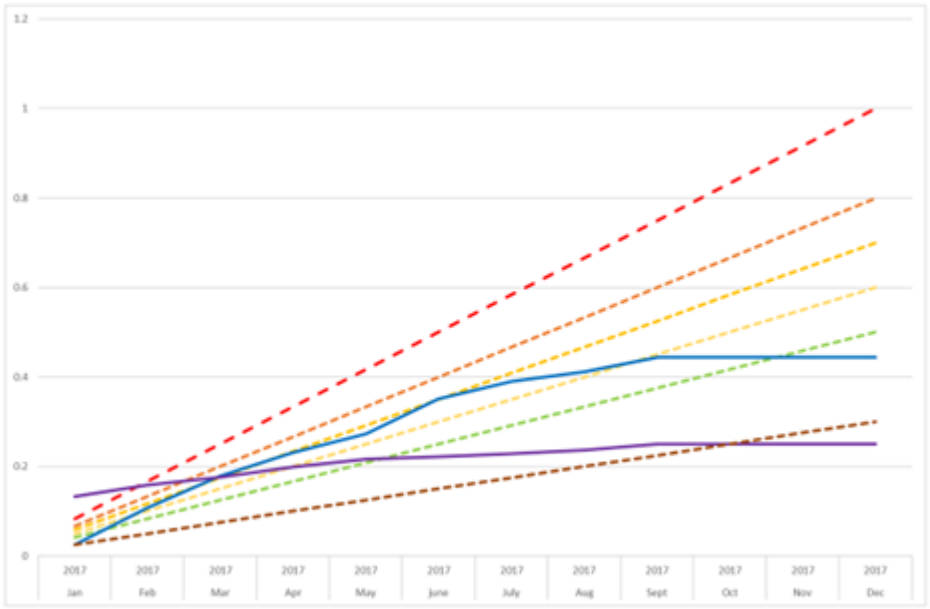
Figure 2. Predicted environmental concentration of B[a]P (ng/m^3) for 2015. The background B[a]P concentration was derived from the measurement and predicted PC at Margam monitoring site.






Tops and Doors ELV compliance - Tata Steel Port Talbot
Doors
Tops
Doors ELV
Tops ELV
Linear (Doors)
Linear (Doors)
Linear (Tops)
% of doors/tops not leaking
105.00
100.00
95.00
90.00
85.00
80.00
75.00


Cusum trends in BaP and related parameters for Port Talbot
BaP : down = good and up = bad
Tops : up = good and down = bad
Doors : up = good and down = bad
Charging : up = bad and down = Good
Black Pushes : up = bad and down = good
BaP
Bap CDP
Charging time
Doors
Tops
Black pushes



What next?

- Once the PRTR data is in and NRW has the splits of BaP between the various sources it will model the releases and reconcile with the measured data to see if there is or is not a predicted BaP failure of the 1 ng/m^3 annual mean target value for 2017 at the nearest populated area.
- We now get BaP data monthly/quarterly and we'll keep tops, doors and BaP results under review.
- We'll track the BaP data using the AQ 'STAP approach'

Conclusions and further actions required

Sinter plant main stack

NRW recognises the **scope and challenges** of the ongoing work at the sinter plant.

Based on current emissions data at A1, the priority from NRW's regulatory perspective is getting dust (particulate) releases from the sinter plant main stack back into compliance. The **distribution of ESP power field failures** and their impact on releases needs to be explored in more detail and will be the subject of a future compliance visit.

NRW feels there is value in **reviewing the by-products and reverts** currently used within the sinter blend. It is known that high chloride levels can adversely affect ESP performance. Tata Steel should consider directing lower chloride reverts e.g. Dorr Pond residues to the sinter plant and critically reviewing **high-chloride material** streams e.g. blast furnace flue gas cleaning

residues to assess whether there are alternative recycling options elsewhere at the steelworks.

Continued notified exceedances (breaches) of the permitted ELVs for particulates at emission point A1 in 2017/18 have been assessed and scored on a quarterly basis in accordance with NRW's Compliance Classification Scheme (CCS).

NRW is aware of a strategy used by the Environment Agency (EA) in response to similar sinter plant ELV breaches at Scunthorpe steelworks. The EA have used an **EPR Regulation 61 Information Notice** requiring information from the operator in respect of sinter plant abatement system performance and improvement plans. An **Enforcement Notice (EPR Regulation 36)** has subsequently been used to formally set a timescale within which the improvement plans need to be completed. NRW is considering this approach in response to the ongoing sinter plant main stack issues at Tata Steel Port Talbot.

Sinter plant secondary de-dust

Tata Steel is considering a modular **bag filter replacement** constructed alongside the existing ESP. This would be installed by April 2020. Tata could consider future proofing the bag filter by designing in supports for additional modules that could be retrofitted.

Continued notified exceedances (breaches) of the permitted ELVs for particulates at emission point A2 in 2017/18 have been assessed and scored on a quarterly basis in accordance with NRW's Compliance Classification Scheme (CCS).

Tata Steel has applied to extend the previously permitted **derogation** against the particulates (dust) ELV at A2 (sinter de-dust: 30.00mg/m3). This derogation extension has been assessed by NRW in permit variation application V016 which was issued on 26 June 2018. **The previous permitted limit of 50.00mg/m3 as a daily mean will apply for the duration of the derogation at A2.** Exceedances of the 50.00m3 ELV will need to be notified in the normal manner using the template in Schedule 5 of the permit.

Coke Ovens

Tata Steel is making steady progress towards compliance in relation to fugitive emissions from **coke oven doors**, with the BAT-AEPL being met in November 2017.

Fugitive emissions from **coke oven tops** has proved a more challenging issue. Many individual pipes, joints and seals along the battery tops need attention. Combined with operational difficulties and the challenge of undertaking work on live coke ovens, this restricts how quickly Tata Steel can improve performance.

Good progress has been made to renew and upgrade the infrastructure associated with **coke oven charging**. However, charging performance appears to have deteriorated in 2018 with regular Schedule 5 notifications to NRW. This apparent deterioration in environmental performance will need to be examined further during our next inspection at Morfa Coke Ovens.

NRW has started to review '**black push**' data for the coke ovens. Continued focus and attention on the battery ends and gas flues will be necessary to maintain coke yields from battery end ovens and minimise black pushes.

It is clear from the CAPEX discussions that Tata Steel has committed significant resource to Morfa Coke Ovens. Further **CAPEX investment** is planned and NRW welcomes the opportunity for regular discussion with Tata Steel.

Continued notified exceedances (breaches) of the permitted ELVs for doors, tops and charging emissions at emission point A54 in 2017/18 have been assessed and scored in accordance with NRW's Compliance Classification Scheme (CCS). This assessment is conducted on a quarterly basis and is recorded in separate CAR forms.

Future Schedule 5 Part A notifications should include an expanded narrative outlining how many door frames, spigot joints, ascension pipes, charge holes etc. have been repaired or upgraded by Tata Steel. Including these running totals would add context and better explain the scope of work necessary to deal with ongoing exceedances at A54. Alternatively, an updated Part B notification should be submitted at least quarterly to formally present this information. Any relevant Schedule 5 notifications from 1 August 2018 onwards must contain this information to **avoid additional permit non-compliance (Condition 4.3.2).**

NRW will consider the applicability of the **information and enforcement notice approach** outlined for the sinter plant main stack (above) to ongoing ELV exceedances at the Coke Ovens.

Fugitive Dust Management & Control

On 4 August 2017 we inspected the screens and the dust (foam) suppression system application points at the blast furnace **ferrous stock house screens**. We found that foam was not being consistently applied at all vibrating (sinter) screens, increasing the potential for fugitive dust emissions. Therefore, we could not confirm the operator (Tata Steel) was taking all appropriate measures to prevent or minimise fugitive emissions from its permitted operations. **One Compliance Classification Scheme (CCS) Category 3 score** has been recorded in response to non-compliance with Condition 3.2.1.

Tata Steel needs to ensure that foam is applied consistently at the ferrous stock house screens to suppress dust and **minimise fugitive emissions** from this part of the steelworks.

The results of the **atomising water spray trial** at conveyor 1027 should be communicated to NRW during a future compliance inspection.

Tata Steel should continue to develop **telemetry links** between the dust (foam) suppression systems across the heavy end and the steelworks PI data system.

Ongoing **sinter cooler conveyor issues** and breakdowns are of concern. We will need to regularly review the status of the cooler and any rolling repair programme leading up to more substantial CAPEX repairs and refurbishments before October 2020.

When working **stockpiles of raw materials and fines**, Tata Steel should avoid exposing unsealed (un-latexed) working faces to the prevailing westerly winds.

NRW welcomes the opportunity to view iron being tapped from No.5 Blast Furnace on 3 October 2017. We observed a clean ‘tap’ following a period of careful adjustment to the taphole drilling process. NRW will need to revisit **cast house controls and procedures** to measure progress with their ongoing review.

NRW feels that a wider review of **legacy stockpiled iron and steelmaking by-products and wastes** is necessary. Some stockpiles remain substantial and increase the potential for wind-borne fugitive dust emissions from the steelworks. Tata Steel (and contractors) will need to demonstrate all appropriate measures are being taken to minimise dust emissions from these stockpiles. This can be considered in the context of the relevant works area Air Quality Management Plans (AQMPs).

Polycyclic Aromatic Hydrocarbons (PAHs) in air

NRW presented information regarding Polycyclic Aromatic Hydrocarbons (PAHs) and local monitoring data for the indicator PAH compound Benzo-a-pyrene (B[a]P). NRW will use a modified Short-Term Action Plan (STAP) approach to track B[a]P results in 2018.

[ENDS]

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0032996**

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

Site	Port Talbot Steel Works	Permit Ref	BL7108IM
Operator/Permit holder	Tata Steel UK Limited	Date	16/02/2018

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.

We will now consider what enforcement action is appropriate and notify you, referencing this form.

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			
B5	C3	Tata Steel needs to ensure foam is applied consistently at the ferrous stock house screens to suppress dust and minimise fugitive emissions.	31/10/2018
H1	X	Tata Steel should consider directing lower chloride reverts e.g. Dorr Pond residues to the sinter plant and critically reviewing high-chloride material streams e.g. blast furnace flue gas cleaning residues to assess whether there are alternative recycling options elsewhere at the steelworks.	31/10/2018
G4	X	Future Schedule 5 Part A notifications for the Coke Ovens should include an expanded narrative outlining how many doors, spigots, pipes etc. have been repaired or upgraded by Tata Steel. Alternatively, an updated Part B notification should be submitted at least quarterly to formally present this information.	01/08/2018
F3	X	When working stockpiles of stored raw materials and fines, Tata Steel should avoid exposing unsealed (un-latexed) working faces to the prevailing westerly winds.	31/10/2018

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.