

Compliance Assessment Report

Report ID:
CAR_NRW0032993

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	03/10/2017	Time in	10:30	Out	16:30
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				
Recipient's name/position	Claire Grainger/ Environment Manager	Date issued	28/06/2018		

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	
E5 - Emissions - Waste	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	A	
H1 - Resource Efficiency - Efficient use of raw materials	A	
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

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.

A site inspection was undertaken at the No.5 Blast Furnace cast house.

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.

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 and 4.3 of Tata's permit.

Person(s) present

Tata Steel

Jason Heatman

Claire Grainger

Jason Massey

Andrew Townsend

Tom Watson (Sinter Plant only)

Wayne Hoffrock (Coke Ovens only)

Joshua Cockings (Coke Ovens only)

Andrew Jones (Ironmaking 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)

This 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:

A1 Sinter main stack

- CAPEX project update and possible life extension work
- Scheduled 10-day plant shutdown w/c 9 October 2017
- Sinter stockpiled in preparation for 10-day stop
- 'Double-dome' valve and valve seal replacement programme
- South ESP waste gas fan: noise/resonance issue
- South ESP waste gas fan: overhaul of motor and bearings
- ESP conveyor repairs during Oct 2017 stop
- North ESP ducting repairs during Oct 2017 stop
- South ESP ducting repairs scheduled for Mar 2018 stop
- Wind main refurbishment and repair
- Waste gas system gaseous monitors (CEMS): overhaul and testing
- Lignite-lime injection system: testing ongoing
- March 2017 'special cause' event resolution and learning
- Dates of future planned maintenance stops
- Compliance with permitted ELV (40.00mg/m³)
- Content of future Schedule 5 Part A & Part B notifications

A2 Sinter secondary de-dust stack

- CAPEX project update and possible life extension work (ESP 30+ years old)
- Ducting, screen house and diffuser repair work
- External assessment of ESP condition by contractor
- Reliability of ESP power fields: wiring issues and age of individual fields
- Installation of 'fog' cannon at ESP inspection door area to enhance ESP electrode effectiveness. Trial ongoing
- Dust system gaseous monitor (CEMS): replacement installed, spares ordered
- Dates of future planned maintenance stops: April 2018 for 16 days?
- Compliance with permitted ELV (30.00mg/m³) and derogation application
- Content of future Schedule 5 Part A & Part B notifications

Sinter cooler

- Cooler repair and refurbishment work programme – update

- Recent cooler carriage derailment. Repair scheduled for Oct 2017 shutdown
- Installation of flexible, resilient 'brush' seals during Oct 2017 shutdown

Sinter plant dust (foam) suppression systems

- Measurement of foam flow and electronic links to PI system
- Ongoing plastic (alkathene) pipe upgrades
- Trials of bio-dispersants
- Closer interface with burdening and furnace charging work teams
- Greater automation considered for SP60 sinter stock house

We have consolidated and summarised our findings and compliance assessments from four targeted sinter plant interventions in 2017/18 in report **CAR_NRW0032996**.

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)

This 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 and tops. We also considered emissions from charging ovens with coal.

During this intervention the following topics and issues were considered:

Coke oven doors

- CAPEX and Morfa Coke Ovens Life Extension project update
- Door and door frame replacement programme
- Small (leveller) door jetting and cleaning options. H&S considerations
- Refurbishment and upgrade of oven pressure controllers
- 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 showing improvement for door emissions
- Content of future Schedule 5 Part A & Part B notifications

Coke oven tops

- CAPEX and Morfa Coke Ovens Life Extension project update
- Sealing and re-sealing of ascension pipe and spigot joints
- Performance of sealants especially at spigot joints. Recycled coal tar pitch proving effective

- Ongoing renewal of ascension pipes. 60 done in 2017 so far
- Cross referencing of spigot and pipe programme data with oven phase data
- Isolation and targeting of 'poorly performing' oven top release points
- Compliance with permitted ELV (1% leakage / 99% no leakage)
- Comparison of Battery 1 v Battery 2 environmental performance. Battery 2 showing improvement for tops emissions
- Content of future Schedule 5 Part A & Part B notifications

Coke oven charging

- CAPEX and Morfa Coke Ovens Life Extension project update
- Replacement and upgrade of charging 'telescope' nozzles. 1 & 2 completed.
- Re-seating of oven charge holes across both battery tops. 25 remaining
- Renewal of charging 'lid-lifters'
- 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

Additional areas of interest

- Coke oven thermal status: ongoing gas flue refurbishment/repair work
- Oven cross-wall thermal profiles illustrating positive effects of flue repairs
- Oven gas tracking, coal carbonisation and frequency of 'black pushes'
- Ram-side coke spillage handling system investment. Scheduled Nov 2017
- Coke-side fume extraction system (Ministerstein) hood and ducting upgrades
- Planned automation of coke pushing
- Planned automation of charge hole cleaning/vacuuming
- Polycyclic Aromatic Hydrocarbon (PAH) releases from coke making

We have consolidated our findings and compliance assessments from four targeted coke ovens interventions in 2017/18 in report **CAR_NRW0032996**.

Fugitive dust management: BF5 cast house

During this targeted inspection we examined the techniques and controls employed at the No.5 Blast Furnace cast house. Molten iron and slag are tapped from the furnace through multiple tap holes and fed into troughs or 'runners'. Casting happens on average about 14-15 times per day. Slag is skimmed from the molten iron and the metal is transferred into rail torpedo cars. The tapholes are opened and closed alternately by using a special clay seal and clay gun.

The cast house has its own fume extraction system designed to deal with releases of furnace gases, fumes and dust from the tapholes. While dust emissions are routinely channelled to a point source (A9) with a prescribed ELV, occasionally the fume extraction capacity is exceeded resulting in fugitive releases of dust from this location.

During this intervention the following topics and issues were considered:

- Casting controls and operating procedures including flow diagrams
- Diagnosis of casting problems and appropriate corrections/interventions
- Taphole clay type, conditioning and curing. Specialist input to casting teams
- Taphole clay temperature and clay gun cooling
- Taphole drilling: clay gun alignment and calibration
- Taphole water ingress influencing volatility of cast
- Taphole integrity and 'dabbing' with clay gun to seal fissures
- Presence of 'grey iron' (high Si) within taphole

- Frequency of oxygen use (to clear taphole blockages)
- Furnace hearth molten metal (liquid) levels. Potential addition of torpedo weights to assist data modelling
- Taphole coke blockages (special cause events)
- Cast house fume extraction: clay gun linkages
- Cast house fume extraction: performance and reliability
- Cast house fume extraction: bag filter integrity and suction rates
- Comparison of BF5 with BF4 cast house operations

We witnessed a cast from a taphole at No.5 Blast Furnace cast house. There was a problem with the alignment of the drill within the taphole. Following checking, clay gun and pecking of material around the taphole, the cast was made. The drill, clay gun and pecker are individual items of remotely controlled equipment.

Visual, colour-coded indicators of metal volume, furnace 'wind' (blast) and metal make were clearly visible on the cast house floor. This information board also displayed clay volumes needed for the next tap and the required drill size for 'green' furnace liquid levels.

Due to the tapping delay, the hot metal volume increased from green to amber and then red. Drill size had to be widened in response to increased furnace liquid levels. Furnace wind was also reduced as the liquid level moved into the red zone.

Ultimately the 'tap' was clean with good capture of fume from the taphole. Once the cast was underway, the drill was removed remotely and the runner cover moved into position to improve fume capture. Towards the end of casting the runner cover is removed to allow the channel to be plugged with clay.

Even though Tata encountered problems getting the cast started and furnace liquid levels increased steadily, the operator responses of drill realignment, reducing wind and changing the drill size all took place without incident and in a controlled manner.

We have consolidated and summarised our findings and compliance assessments from this inspection and three other targeted fugitive dust management interventions in 2017/18 in report **CAR_NRW0032996**.

Other matters

There is ongoing work to examine iron-rich (ferrous) by-products and wastes generated at the steelworks and assess their suitability for recovery and recycling. The issue of zinc removal from certain materials continues to present challenges. The hydrocyclone project near the sinter plant continues to conduct trials on certain by-products generated on site. A rotary hearth furnace option has previously been mooted for Port Talbot and may be reconsidered.

The BOS Plant CAPEX (Phase 1) project has now concluded. Tata Group Environment are assessing the outcomes from Phase 1 which will inform a decision regarding the planned Phase 2.

An engineering consultant is reviewing the fugitive dust abatement techniques in use across the 'heavy end' (coke ovens > sinter plant > blast furnaces > BOS plant). Tata Steel await the consultant's report outlining recommended measures needed to secure compliance with current and future Best Available Techniques (BAT). Bag filter technology is likely to feature in this review.

Conclusions and further actions required

In respect of the following works areas:

- Sinter Plant

- Coke Ovens
- Fugitive Dust Management & Control

We have consolidated and summarised our findings and compliance assessments from this intervention and three subsequent targeted visits during 2017/18 in report **CAR_NRW0032996**.

Despite some operational difficulties, the cast we witnessed at BF5 cast house took place without incident and in a controlled manner. The cast house fume extraction system operated as designed.

There is ongoing work to examine iron-rich (ferrous) by-products and wastes generated at the steelworks and assess their suitability for recovery and recycling.

An engineering consultant is reviewing the fugitive dust abatement techniques in use across the 'heavy end' (coke ovens > sinter plant > blast furnaces > BOS plant). Tata Steel (and NRW) await the consultant's report.

[ENDS]

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0032993**

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	03/10/2017

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			

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.