

Compliance Assessment Report

Report ID:
CAR_NRW0032815

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	14/06/2017	Time in	12:30	Out	15:30
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	02/02/2018		

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	
C3 - General Management - Materials acceptance	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	X	
H2 - Resource Efficiency - Energy efficiency	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

Tata personnel 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.

This intervention focused on the Sinter Plant which prepares, blends and heats raw materials for use in the blast furnaces.

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

Fiona Abbott
Jason Heatman
Claire Grainger
Michael Launder
Gabrielle Torkington
Andrew Townsend
Tom Watson
Darren Isaac
Stephanie Houghton
Jeff Lugg
Kevyn Bevan

NRW

Mark Broom
Doug Cowie

CAPEX update

The CAPEX work required to meet the IED standards is largely coming the end of its implementation phase at the sinter plant.

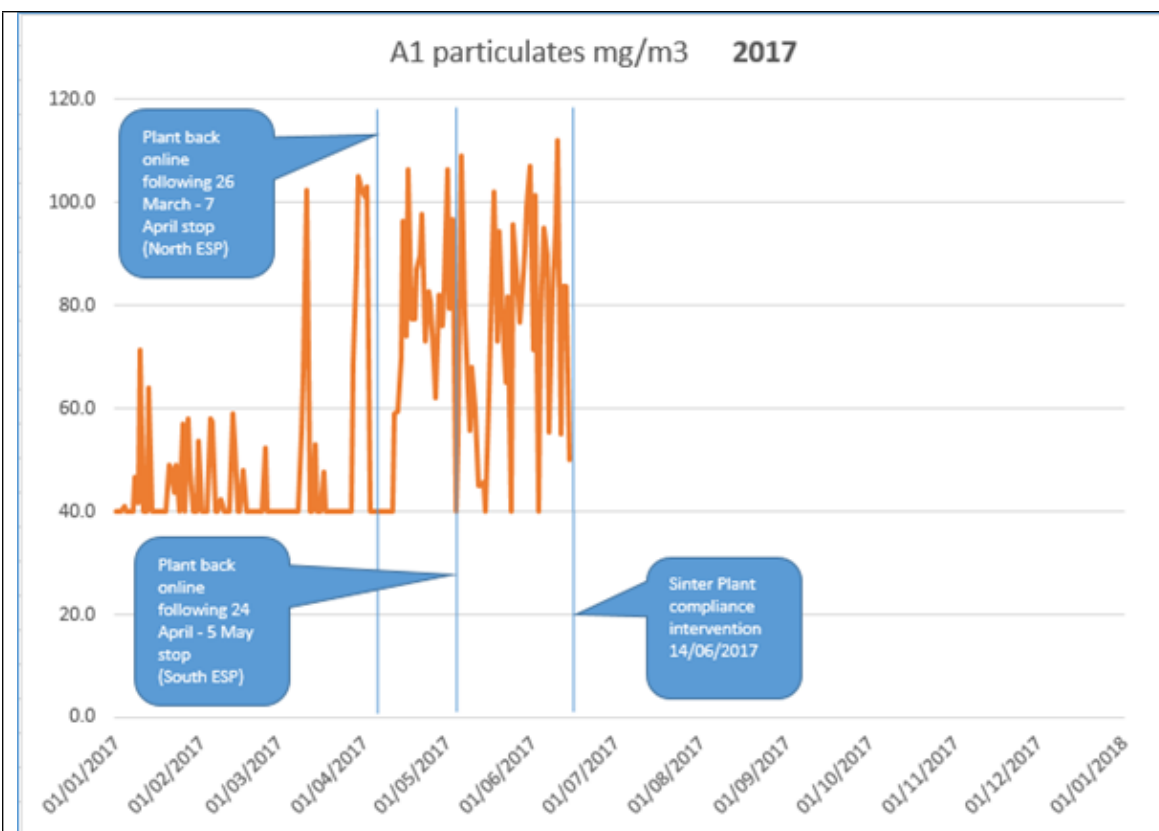
Sinter plant main stack (A1) emissions

The sinter plant has benefited from significant investment by Tata Steel to reduce dust (particulate) releases from the main stack and comply with the BAT-Associated Emission Limit (BAT-AEL) of <40 mg/m³ as a daily mean for two-fan (dual fan) operation. This work has been carried out over two years, has cost ~£10m and has involved multiple extended shutdowns of the sintering process.

Prior to this inspection, two shutdowns took place between March and May 2017 which involved major work on the North and South Electrostatic Precipitators (ESPs). Our previous report **CAR_NRW0026923** contains more details about this work and the technical reasons for it. In short, electrical fields within each ESP were split into two and new switch gear installed to enable split field electrode rapping (dust dislodgement). New ESP control systems were installed allowing increased power delivery. Finally, damaged exit conveyors, double-dome valves and corroded ESP panels were repaired.

Powering down one set of ESP fields when rapping reduces the electrical attraction of the electrodes and causes more captured dust particles to fall into the collection hoppers. While one set of electrodes is powered down, the other set remains charged and their power fields continue to attract dust within the waste gas flow. This split-field technique aims to improve dust capture and removal rates from the ESPs.

The ESP split field installation work was completed in April (North ESP) and May (South ESP) and a step change in performance was expected following a period of plant optimisation. The graph below shows the pattern of BAT-AEL exceedances in 2017. It clearly shows that the investment work appears to have had a detrimental effect on main stack dust emissions from March onwards, with higher and more frequent exceedances being recorded during this period. The aim of this inspection was to scrutinise Tata Steel's plans to optimise and improve ESP performance and comply with the 40 mg/m³ BAT-AEL for dust.



Tata's engineers explained that the planned ESP optimisation work had been suspended while a series of special cause issues affecting the sintering process were investigated and rectified. One such example is discussed later in this report and in **CAR_NRW0031694** (non-homogenous raw materials blend).

Tata Steel plans to commence ESP optimisation once these special cause issues have been resolved. Based on current estimations, the optimisation work is expected to be completed by September 2017. Two 5-day sinter plant stops are planned in July 2017 to allow the first stages of optimisation to proceed.

Alongside the ESP repair and refurbishment work, Tata Steel has undertaken a programme of wind main repairs and replacements which are critical to preventing ambient air ingress and ensuring efficient ESP operation. Further repairs to the inlet ductwork of the North ESP are planned for July 2017.

Sinter plant secondary de-dust (A2)

Tata Steel is continuing to work to improve the sinter de-dust system. Inspections of the ducting have revealed several damaged/degraded areas in need of replacement and/or over plating. Parts of the ducting have also narrowed and in some cases become blocked due to dust deposits inside the system. Tata's engineers have already started to replace sections of ductwork, have repaired the 'mixing boxes' and are removing the dust build ups.

This work has improved the working environment in the sinter plant, but it has also increased the load on the existing ESP. Thus, the ESP power fields have been struggling to cope with the increased load and occasionally have failed resulting in higher releases of particulates from A2. It has been necessary to bring the secondary de-dust ESP offline during May to correct these faults and repair broken power field wiring.

Tata also suspects that dirty monitoring equipment may be responsible for some high de-dust particulate readings during April and May 2017. Further information on this will be supplied in a Schedule 5 Part B notification.

The secondary de-dust system is now around 40 years old and requires an increasing amount of maintenance and capital expenditure to keep it functional. Tata Steel has an agreed CAPEX project to replace the existing ESP and previously agreed a derogation from the IED particulate limits with NRW. This derogation has now lapsed, necessitating a revised application to derogate with a longer timescale. Tata Steel has submitted this derogation application as part of permit variation V016.

The revised derogation application proposes a bag filter replacement for the ESP. Over the long term, bag filter technology offers better environmental performance than a replacement advanced ESP. There could also be scope to bring this CAPEX work forward, but at the time of inspection Tata Steel could not give a definitive commitment to this effect. NRW needs to be aware of any technical constraints which could hamper or even preclude installation of a bag filter. Our Evidence, Policy & Permitting (EP&P) staff may contact Tata Steel requesting further information in relation to the sinter de-dust ESP replacement project.

There is no agreed relaxation of the IED particulate limits for sinter secondary de-dust in place at present. NRW will continue to assess Tata Steel's application to derogate, but in the meantime, any exceedances of the 30mg/m³ limit must be notified to NRW.

Further discussions on the status of the sinter de-dust ESP replacement CAPEX project will be necessary in 2017/18.

Use of third-party raw materials in the sintering process

In **CAR_NRW0031694** we discussed Tata's investigation into blast furnace bleeder valve releases that occurred in March 2017. Poor sinter quality was established as the primary contributing factor to the furnace instability that produced these releases. The sinter was produced from a non-homogenous blend of raw materials (ores, pellets and concentrates) purchased from a third-party ore trader.

The contribution of the non-homogenous blend within the overall mix of materials required for sintering was higher than it would normally be owing to some unrelated ore supply issues. The quality of the sinter produced was very poor and inconsistent, with pockets of partially-sintered material. Tata's engineers attempted to change several parameters to improve the quality of the sinter produced by this blend, but the sintering process did not respond as expected.

After a second sinter bed started to be laid down and used, sinter quality still failed to improve. Use of this sinter started to affect the blast furnaces in terms of their stability but also their productivity (~£2m cost). The problems became so acute – as evidenced visually by the March bleeder releases – that Tata Steel decided to abandon the use of the second sinter bed.

Detailed analysis and consultation between sinter plant, ironmaking and Tata Group Environment engineers has been undertaken. Tata has found that if the ore blend is too fine, then the sintering process cannot agglomerate the particles properly to form strong sinter. Tata has found that there is a critical threshold of fines vs coarse material, below which sinter agglomeration fails to take place. The correct ratio of fines-to-coarse material must be maintained to avoid sinter bed 'collapse'. The non-homogenous raw materials blend used in March contained layers of very fine particles. The correct sintering ratio could not be achieved using this material and the result was sinter bed collapse.

Since this issue has been identified, all sinter beds are now laid down using raw material blends which are above the critical fines-to-coarse threshold. No similar problems have been encountered following these changes. Tata Steel has also made its ore procurement personnel aware of this issue and the learning gained from it to help ensure consistent, homogenised raw material blends are delivered to site.

NRW has investigated the root cause of the sinter and blast furnace problems that occurred in

March 2017. We have not found evidence of an associated permit non-compliance.

Tata Steel is reminded of the permit requirement to take appropriate measures to ensure that raw materials are used efficiently in the permitted activities (Condition 1.3). Under sub-condition 1.3.1(c), the operator must review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material use. The current consolidated (IED) permit was issued in April 2015 therefore NRW expects this raw materials review to be undertaken and submitted to us by April 2019.

Site inspection

We undertook an inspection of the sinter plant ESPs (main stack and secondary de-dust). The photo below shows the rapping equipment fitted to the top of the main stack South ESP. New controllers have been fitted (foreground) with older units scheduled for replacement arranged behind them.



Some double-dome valve seals (sinter ESP dust conveyor system) have been prone to failure in recent months. The photo below shows a damaged seal with tears visible in the rubber. Tata Steel is investigating if there is a more robust alternative which can be used instead.



The photograph below shows some of the damaged duct work connecting the sinter plant with the secondary de-dust ESP.



On concluding our inspection, Tata Steel agreed to submit a Schedule 5 Part B notification for main stack and secondary de-dust particulate exceedances during 2017. NRW is already in receipt of the relevant Part A notifications. The Part B will confirm in writing what steps Tata Steel

is taking to address these ongoing non-compliances.

Conclusions and further actions required

Sinter main stack performance (particulates) has deteriorated since the recent work on the ESPs. Tata Steel's planned ESP optimisation work will take longer than previously thought and is scheduled to be completed by September 2017. However, it could last until the end of 2017. NRW cannot allow this situation and ongoing non-compliance to continue indefinitely. We expect to see improved environmental performance during the second half of 2017 and we will review the situation in early 2018.

NRW needs to be aware of any technical constraints which could hamper or even preclude installation of a bag filter. Our Evidence, Policy & Permitting (EP&P) staff may contact Tata Steel requesting further information in relation to the sinter de-dust ESP replacement project.

There is no agreed relaxation of the IED particulate limits for sinter secondary de-dust in place at present. NRW will continue to assess Tata Steel's application to derogate, but in the meantime, any exceedances of the 30mg/m³ limit must be notified to NRW.

Tata Steel has put in place a series of measures to prevent a recurrence of the poor sinter quality issue (due to a non-homogenised raw materials blend). This issue has cost the company in lost time and productivity. NRW has investigated the root cause but we have not found evidence of an associated permit non-compliance.

Tata Steel is reminded of the permit requirement to take appropriate measures to ensure that raw materials are used efficiently in the permitted activities (Condition 1.3). Under sub-condition 1.3.1(c), the operator must review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material use. NRW expects this raw materials review to be undertaken and submitted to us by April 2019.

We inspected the improvements Tata Steel has made to its sinter plant ESPs. Examples of the problems encountered by Tata were clearly visible. NRW will re-inspect the sinter plant as the CAPEX projects progress further.

[ENDS]

EPR Compliance Assessment Report

**Report ID:
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Site	Port Talbot Steel Works EPR/BL7108IM	Permit Ref	BL7108IM
Operator/Permit holder	Tata Steel UK Limited	Date	14/06/2017

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			
H1	X	Under permit sub-condition 1.3.1(c), the operator must review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material use. NRW expects this raw materials review to be undertaken and submitted to us by April 2019.	29/03/2019

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.