

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

Site	Tata Steel Port Talbot steelworks	Permit Ref	BL7108IM (as amended)
Operator/ Permit holder	Tata Steel UK Ltd		
Date	19 September 2014	Time in	09.30 Out 11.30
What parts of the permit were assessed	See below		
Assessment	EPR - inspection	EPR Activity:	Installation X Waste Op Water Discharge
Recipient's name/position	Jason Heatman, Lead Environmental Engineer, Tata Steel Port Talbot		
Officers names	DMP Broom & DE Cowie	Date issued	17 November 2015

Section 1 - Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). 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			Condition(s) breached
a) Permitted activities	1. Specified by permit	A	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	A	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	A	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	A	
e) Emissions	1. Air	A	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	A	
f) Amenity	1. Odour	N	
	2. Noise	A	
	3. Dust/fibres/particulates	A	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	A	
	2. Records of activity, site diary, journal & events	A	
	3. Maintenance records	N	
	4. Reporting & notification	A	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

KEY: C1, C2, C3, C4 = CCS breach category (*suspended scores are marked with an asterisk),
A = Assessed or assessed in part (no evidence of non-compliance), N = Not assessed, NA = Not Applicable

Number of breaches recorded

-

Total compliance score
(see section 5 for scoring scheme)

-

If the Total No Breaches is greater than zero, then please see Section 3 for details of 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 (e.g. 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 suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

Site description

Tata Steel UK Ltd (Tata) 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). The steelworks has several identifiable permitted 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). The permit also covers coke making and the reception, stockpiling and blending of raw iron making materials. Two other companies, Cambrian Stone and Harsco, undertake separately-permitted slag handling and iron plating activities at the steelworks on Tata's behalf.

Purpose of visit/assessment

August and September 2014 has seen an increase in the number of environmental complaints received by Natural Resources Wales (NRW) about Port Talbot steelworks. The nature of these complaints has included orange smoke and dust emissions from the Basic Oxygen Steelmaking (BOS) plant, visible fume from the sinter plant main stack, blast furnace casthouse fume and smoke and noise from blast furnace bleeder valve releases.

The purpose of this intervention was to examine the causes of these complaints in more detail and to assess Tata's response and mitigation measures. We met with Ian Hobson, Manufacturing Director (Port Talbot Hub), who provided an overview of the measures Tata is taking.

We also met with other Tata representatives to discuss separate matters in relation to the draft waste strategy for the steelworks.

Person(s) present (Office based)

Tata Steel	Richard Leonard	NRW	Mark Broom
	Jason Heatman		Doug Cowie
	Ian Hobson (complaint issues)		
	Mark Sexton (waste issues)		
	Steve Thomas (waste issues)		

Complaint issues

Tata has reviewed complaints this year and classified them into six main categories - dust, sinter plant plume visibility, bleeder valve openings, cast house fume, iron plating and BOS plant slopping. Ian Hobson provided a presentation dealing with each of these categories in turn and outlining the investigations, conclusions and measures being taken to address these issues.

Dust

Andrew Taylor from Tata's Environmental Task Team is leading on dust and air quality issues for the site through a series of Key Performance Indicators (KPIs) and a site action plan. We have already reviewed this dust/air quality plan and it has not assessed in detail at this intervention.

So far in 2014 the number of air quality exceedances recorded at the Margam Fire Station AURN air quality monitor (which have been attributed to local sources of PM10) is 10. Most of these exceedances were recorded during the first quarter (January – March 2014). The low number of PM10 exceedances since then does not correlate with the regular complaints received by NRW this year about nuisance black dust from the steelworks. NRW is trying to understand this discrepancy and we will be looking at nuisance dust deposition data collected by Neath Port Talbot County Borough Council (NPTCBC) and by Tata. We will also review Tata's site action plan periodically with the Environmental Task Team at future interventions.

Ian Hobson is leading for the site on the remaining five complaint issues.

Sinter plant plume visibility

Tata have identified a number of factors that affect the visibility of the sinter plant plume. These include: starting and shutting down the plant; the time of observation (diurnal factors); the chloride content of the sinter feed; air ingress into the wind main; the rapping cycles of the electrostatic precipitators (ESPs) and the temperature control on the sinter strand.

The start-up procedure has been changed so that heat is generated in the wind main and the ESPs before increasing the suction and therefore the rate of production. This is aimed at improving the particulate collection and variability of emissions during start up as the warmer the ESPs are at that time the better their collection efficiency will be. Tata also has a plan to reduce the chloride content of the sinter feed which should be in place by March 2016. It is believed that chloride content can influence how visible the sinter plant plume is.

The use of lignite/lime to alter plume chemistry should also help reduce plume visibility. Currently urea is used for this purpose but urea is believed to have the side-effect of making the plume more prominent. There are a number of actions being taken to make the lignite/lime project operational. These include reducing air ingress through holes in the wind main and between valves on the EP dust outlets; and fitting more instrumentation to detect heat build-up and blockages in the base of the ESPs which can lead to glow fires. Also the ESPs will be upgraded to improve their operation and effectiveness by March 2016. Changes include optimisation of the rapping cycles and the power voltages.

We are already being informed about the progress of improvements at the sinter plant through regular Capital Expenditure (CapEx) meetings with Tata which take place every quarter.

Cast house fume

Tata has identified a special cause failure of the clay gun control system on furnace 4 which occurred on 15 August 2014. The company has put in place a number of actions to remedy this problem. NRW will be investigating this special cause failure in more detail during a future compliance visit to the blast furnaces.

Furnace 5 has had problems with the clay used to seal the tap holes. New water-cooled guns are on order for furnace 5 so that the clay temperature is more constant; this helps to ensure a consistent cure of the clays used for each furnace. The first gun should arrive on site during October/November 2014. One of the furnace 5 tapholes has also been identified as needing relining and re-grouting.

Each furnace checks at the start of every shift certain things for safety reasons. These checks have been expanded to include environmentally critical or important checks. NRW would like to see this approach applied more widely across the works.

Blast furnace bleeder openings

There have been a number of bleeder openings this year. Blast furnace 4 has had significantly more openings than furnace 5 during 2014. There has been a special cause identified for one opening – a bleeder valve solenoid failure on 3 July 2014. NRW is already investigating this special cause failure.

Tata have also identified different settings on the furnace control systems between furnaces 4 and 5. These settings need to be optimised and some changes will be made when furnace 4 is taken off line for the next routine maintenance stop. After this work is complete further fine tuning can be done while the furnaces are online. Furnace 5 runs on mainly Port Talbot-produced coke whereas furnace 4 uses mainly bought in or third party coke. Tata have changed their coke purchasing strategy away from the spot market and now use a Japanese source of coke. Since Tata started using this coke in Furnace 4 there has been a period of more stable operation.

Whenever there is a bleeder opening, the furnace operational settings have to be reduced and then progressively built up back to the previous levels of operation necessary to produce iron efficiently. This change in operation reduces output and compounds the problems of bleeder releases. More stable furnace operation leads to less bleeder openings and a more consistent level of high output. It is not clear how long this Japanese supply strategy will last.

Iron plating

Tata has previously told us about the use of 'molehills' at the plating pits and its plans to manage the tundishes used to control the flow of molten iron between the torpedoes and the pits. Tata strives to avoid plating if possible but there are occasions when it becomes a necessary control to manage surplus iron. Our assessment of Tata's current plating techniques has been detailed in our previous CAR 5556. We will continue to monitor the environmental performance of plating operations at Port Talbot.

Steel (BOS) plant slops

In the steel making process, fluxes such as limestone are added to collect the residual impurities present in the desulphurised molten iron. Oxygen is then blown into the molten iron through a submerged water-cooled lance and the gases produced in the steel making process (mainly a mix of carbon monoxide and carbon dioxide) pass through the fluxes and out of the mouth of the converter. The flux forms an emulsion with the molten metal to partition any residual contaminants into the frothy emulsion. If the reaction to produce steel is too strong, the froth can expand more than expected out of the converter which causes a 'slop'. The visible impact from slops can be seen when the secondary fume collection system cannot abate all the fugitive fume produced by the converter. Particulate is liberated from the slop and the heat generated by the process causes convection through the vents in the BOS plant roof.

A coolant – either a waste oxide briquette or lumps of iron ore – is often added to reduce the temperature of the steel made in the converter. The molten metal mixture is adjusted by some addition of other materials such as aluminium to change the final composition of the steel produced. At the end of the process the molten steel is tapped out of the converter and the molten slag is tapped out through a separate taphole.

Tata has received a number of direct complaints about emissions from the BOS plant in 2014 which have been linked to slopping events. Reducing slops is good for the site in that it increases steel yield, improves process control and efficiencies, reduces complaints and reduces the risk of damage to the steel plant and equipment.

Tata are developing a slop detection system by the use of software and cameras to assess when there has been a slop. This system works on the basis of looking at light intensity at the converter using a digital camera and the software converts that intensity into a number; the higher the number the bigger the risk of a slop. Each oxygen 'blow' has a record not only of the risk number but also a video recording of the blow. The slop detection system also uses the oxygen flow rate for the lance which together with the slop index number from the slop camera can be used to calculate the optimum point at which to react to a slop. The current slop response is manually operated but the longer term aim is to automate the response based on intelligent slop data acquisition.

There are a number of factors that increase the risk of a slop. These include high silicon levels in the molten iron; the nature of the scrap mix used to make up the metal charge; and the quantity, timing and rate of addition of the coolant (waste oxide briquettes and iron ore) used in the steel making process. A slop prediction model taking into account these factors is being developed in Scunthorpe for the Tata Steel Group.

Tata are also looking at other ways to reduce the risk of a slop. These include reviewing the levels at which the oxygen lance is used – the lance ladder. Another consideration is the vessel lining life. There is a higher slop risk with a newly re-lined converter vessel than with an old vessel: as the lining wears away, the vessel volume increases which means it has greater capacity to contain a volatile charge. This is offset however by the loss of the in-vessel agitation (Bath Agitation Process - BAP) system as the vessel lining ages. The BAP system can reduce in efficacy as the refractory lining is maintained and slag deposits seal the old lining.

Waste issues

Tata have been exploring the use of rotary hearth furnace (RHF) technology to treat a number of mainly zinc containing waste streams from the iron and steel making processes. Tata are in the process of developing a RHF for Port Talbot. The projected cost of this technology has risen as the RHF project has developed which makes this project increasingly difficult to fund. In addition to developing the RHF project, the site is looking at other ways of implementing a similar solution at a more affordable cost. The RHF technology involves making a briquette out of the materials, heating it to above a certain temperature to drive off the residual zinc into the gas phase, cooling the resultant briquettes and capturing the zinc in the form of zinc oxide.

During a simple trial an experimental briquette was placed on a slab going into a reheat furnace in Llanwern and the briquette was retrieved once it had travelled through the furnace. The results of this trial showed that the briquette lost zinc. Tata wanted to discuss this concept with us and to ask about carrying out this technique on a larger scale. There are some redundant Re-heat furnaces in Port Talbot that could be converted into a form of furnace to remove zinc from briquettes. Before money can be allocated to this project more work needs to be done to confirm the approach. This work would be best carried out at Llanwern and Tata would need to discuss NRW's regulatory approach with our Llanwern site inspector.

The final issue we discussed concerned waste material from the hot mill at Llanwern steelworks. This consists of mill scale and filter cake from hot mill sludge/effluent treatment. Tata propose to transfer some of this waste to Port Talbot owing to some production variability and storage capacity issues at Llanwern.

Tata is able to arrange appropriate waste disposal options for this material which could involve disposal at the permitted landfill site at Port Talbot. However the company is also seeking to explore future recovery and recycling options which could involve recovering the metal or stabilising the waste sufficiently to allow it to be recycled and used for construction purposes. These options could also potentially be applied to hot mill sludge produced at Port Talbot.

We are willing to examine Tata's proposals in more detail provided a legitimate waste consignment/transfer arrangement is put in place first for any movements to Port Talbot. There are permitted hazardous and non-hazardous landfill sites at Port Talbot steelworks which could accept this material depending on its classification.

Should Tata wish to pursue this initiative it needs to provide further information to NRW following this intervention confirming the arrangements for the Llanwern material and clarifying its hazardous/non-hazardous waste status. The key criteria is likely to be the oil content of the waste and the associated hazard assessment criteria that would apply e.g. H4, H5, H7. A wider range of recycling/recovery options are likely to be available for non-hazardous wastes. Once the status of the material is confirmed it would need to be regularly sampled and tested to ensure it remains correctly classified. Further guidance on the testing and assessment of hazardous wastes is contained in the Environment Agency's WM3 Technical Guidance document -

<https://www.gov.uk/government/publications/waste-classification-technical-guidance>

[END OF SECTION 2]

	EPR Compliance Assessment Report	Report ID: 05784
This form will report non-compliance with your permit as determined by an NRW officer		
Site	Tata Steel Port Talbot steelworks	Permit
Operator/ Permit	Tata Steel UK Ltd	Date
		BL7108IM (as amended) 17 November 2015

Section 3- Enforcement Response		Only one of the boxes below should be ticked
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.		
Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.		n/a
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.		n/a
We will now consider what enforcement action is appropriate and notify you, referencing this form.		n/a

Section 4- Action(s)			
Where a non - compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.			
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 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 which 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 Natural Resources Wales (NRW) to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). 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 (e.g. 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 and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

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

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 twenty 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 the officer's line managers. 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) 601 0987**.