

## Compliance Assessment Report

**Report ID:**  
**CAR\_NRW0018550**

**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           | 24/03/2016                           | Time in     | 09:30      | Out | 16:00 |
| Assessment type              | Audit                                |             |            |     |       |
| Parts of the permit assessed | See report below                     |             |            |     |       |
| Lead officer's name          | Broom, Mark                          |             |            |     |       |
| Accompanied by               | Cowie, Douglas,Baskerville, Guy      |             |            |     |       |
| Recipient's name/position    | Fiona Abbott/ Environment Manager    | Date issued | 19/09/2016 |     |       |

### Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. 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 |
|----------------------------------------------------------------------|--------------|-----------------------|
| C2 - General Management - Management system and operating procedures | 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.

|                                    |          |                                                                     |          |
|------------------------------------|----------|---------------------------------------------------------------------|----------|
| <b>Number of breaches recorded</b> | <b>0</b> | <b>Total compliance score</b><br>(see section 5 for scoring scheme) | <b>0</b> |
|------------------------------------|----------|---------------------------------------------------------------------|----------|

**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) 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

To review the complaint issues reported to Tata over the previous quarter of operation (Jan 16 – Mar 16 inclusive). To discuss the handling of BOS slurry and a potential trial of pellets made from on site by products.

### Person(s) present (Office based)

|                     |                             |            |                 |
|---------------------|-----------------------------|------------|-----------------|
| <b>Tata Steel</b>   | Scott McKinnon (Complaints) | <b>NRW</b> | Mark Broom      |
|                     | Fiona Abbott                |            | Doug Cowie      |
|                     | Jason Heatman (complaints)  |            | Guy Baskerville |
|                     | Clare Grainger (Complaints) |            |                 |
|                     | George Govan (BOS slurry)   |            |                 |
|                     | Mike Brimble (BOS Slurry)   |            |                 |
| <b>Darlow Lloyd</b> | Rhys Lloyd (BOS Slurry)     |            |                 |
|                     | Mike Hodges (BOS Slurry)    |            |                 |
|                     | Owain Lloyd (Pellet Trials) |            |                 |

### Complaints

Tata collate their complaints in a spreadsheet and they use this document to track their contact and close out with each report. They email a weekly report about complaints received in the previous week to the councillors who represent the wards next to the works.

Tata have noticed that there has been a reduction in the number of complaints through NRW and more reports have come through their Freephone help line (0800 138 6560). There have been a range of reports this quarter from specific events such as bleeder openings, BOS plant fume and the fire at the coke ovens to general issues such as fallout, odour and noise reports. If it were not for the bleeder events in January, the level of complaints this quarter to Tata would have dropped compared to the previous quarters.

### Bleeders

Bleeder openings are related to the stability of the blast furnace. Bleeder valves are a safety device and pressure relief valves designed to protect the furnace from being over pressurised. They are like the valve on top of a pressure cooker or the cap on a car radiator both of which are designed to open if the pressure or the water level in the case of a car radiator gets too high.

Tata have been working at improving furnace stability by changing the operation of the furnaces and the design of the hot blast nozzle to help improve this aspect of furnace operations. Previously they have changed the opening sequence of bleeders to help reduce the particulate releases when a bleeder opens. The first bleeder opening should be the pressure relief valve on the gas cleaning system followed later by those on top of the furnace. Previously the valves directly on top of the furnace opened first and the gas cleaning ones last.

### BOS plant fume

Tata have equipment and a system that helps them assess each time they make steel in the steel plant. To convert iron into steel the carbon and other contaminants have to be removed. This happens in the steel plant where oxygen is blown into the molten iron and lime is added to the molten metal to form a foam slag that collects the contaminants in the metal. Every time molten iron is converted to steel, this equipment looks to see height of the foaming slag. If this foaming slag gets too high it spills out of the converter and the gas and dust collection systems cannot deal with that amount of fume and it can be seen coming out of the steel plant.

Tata have reviewed their operations and the sequences that certain additions are made and also how the oxygen is blown into the molten metal. As a result of their review and the reports of fume coming from the steel plant, they have changed when they make certain additions into the process and they will be changing over the next quarter the sequence and depth of the lance that blows oxygen into the molten metal.

### Fire at the coke ovens

On 11 February 2016 there was a fire at the coke ovens. Early reports have said that the cause was a lightning strike caused a complete loss of power to the whole site. This meant that the gas cleaning system at the coke ovens could not operate and the gases produced by the ovens had to be released. Tata along with all other operating coke ovens in the UK burn these gases in these circumstances. This flaring continued until power could be safely restored in sequence across the site. Power has to be restored in a set sequence to ensure the safe restart of the various plants on site. Due to the scale of the power failure this took several hours before power was brought back to the coke ovens and then the gas safely introduced into the gas cleaning systems.

This event will be investigated jointly by NRW and HSE.

### Fallout

The occurrence of fall out is dependent on a number of factors such as plant operations, throughput, stock levels, wind direction and weather conditions. Stock levels have been particularly low; there have been some extended periods of northerly winds over the winter months with the weather being very wet for most of this winter. Since October 2015 output has been reduced at the site for operational and financial reasons. All these factors should have helped to reduce the fall out levels seen over this quarter. Neath

Port Talbot Council measure fall out at a number of sites near the steelworks. Their initial results show that total deposition rates continue to remain high (top LH Graph below). The total deposition is dominated by iron rich material (top RH Graph) and not calcium {slag/steel related} (bottom LH graph) or coal (bottom (RH Graph)). However not all the first quarter data has been received and the effect of the winter weather and reduced throughput is not apparent.



In addition to our work on improving air quality we have tightened a number of particulate limits across the site. In particular at the sinter plant main stack. Since the middle of March 2016, an EU wide limit of 40 mg/m<sup>3</sup> as a daily mean has been imposed. Initially Tata complied with this limit but in recent weeks they have had problems meeting this new limit. In Early April, the sinter plant was taken out of operation for more major work that started in the October shutdown and included replacing large section of the duct work leading from the plant to the dust collection equipment and repairing leaks in the some of the existing duct work. This work and the work in the October shutdown when more sections of the large duct work were replaced and new valves and conveyors where installed in the dust collection equipment appear to have improved particulate capture and early results show that the sinter plant is back in compliance with this new limit.

## Odour

There are several sources of odour within the steelworks. These include the coke ovens and the blast furnaces where slag is cooled. The smell associated with the coke ovens is chemical or anthracite coal like smell. In the past quarter we have changed our permit to operate to tighten the fugitive limits at the coke ovens. We believe that fugitive fume from the coke ovens contributes to the back ground levels of odour from the site so reducing these limits will help with the odour issue. We want to ensure that blast furnace slag is granulated to help improve air quality and also to reduce the rotten egg smell associated with cooling blast furnace slag in open pits. Around 80% of the slag produced by the furnaces is granulated. We regularly review the causes of not granulating the slag and see what more can be done to improve the amount of slag that can be granulated.

## Noise issues

Historically there have been droning noise complaints associated with the sinter plant. We have been carrying out noise surveys across Port Talbot to help identify the noise complaints that have

been reported to us. Our noise work has shown that the sinter cooler fans could be contributing to some noise complaints. We are working with Tata to carry out further noise monitoring at an offsite location. We have bought a new system that we can access the noise data remotely so when the wind comes from a specific direction we can look at the data remotely to see if the noise levels recorded could lead to complaints in the Town. One of the problems with noise monitoring is that when we carry out noise monitoring in the open air weather conditions affect the sound levels and we cannot monitor noise outside if the wind is too strong or if it is raining as wind and rain will affect the microphones.

### BOS slurry

The steel plant gas cleaning systems produce a slurry which was thickened using a clarifier and then made into briquettes by Harsco for the steel plant. The briquetting operation has stopped now that some of the slurry is used as a feed stock in the sinter plant. The steel plant is on a low zinc 'diet' so the BOS slurry can be returned to the iron making process under controlled amounts that are limited by the zinc levels to 'protect' the furnaces. Darlow Lloyd have been looking at techniques to dry the slurry for use and storage elsewhere within the steelworks. Before the briquetting process, the steelworks had BOS slurry dewatering bays. Darlow are looking to build new drying bays. The design will be based on the use of landfill liners to protect ground water from any run off from the slurry. The plan is to use one bay to receive for a week while the other is 'dried' and then dug before swapping over duty on the bays. Each bay will have impermeable floors and external bund walls but each will have a permeable internal wall that allows any drainage to collect and be returned as make up water for the gas collection system. The floors of each bay will have a slag layer to protect the landfill liner when the bay is dug out to remove the dewatered BOS solids.

This approach is sound and a practicable alternative to the use of the thickeners now that the briquetting process has stopped operations but it needs to be added to the Tata steel permit. Tata and Darlow Lloyd are looking at the similar process for dewatering the sludges from the hot mill effluent treatment systems.

### Pellet process

Tata Steel and Darlow Lloyd presented a proposed trial to recover de-watered BOS slurry to produce an iron-rich pellet that can be used as a 'revert' in the iron making process – either at the sinter plant or at the furnaces. This proposed trial is linked with the new dewatering/drying projects described above. Darlow Lloyd have observed favourable results from laboratory tests and now wish to upscale the process using a newly constructed bespoke treatment unit. As per BATc 8 of the Iron & Steel BREF, it is envisaged that the process will provide a sustainable and effective solution to waste minimisation whilst also providing a low-cost iron-rich feedstock.

The process will involve the further de-watering and in-vessel pelletisation of the BOS slurry prior to the application of heat at temperatures high enough to drive off zinc in the form of zinc oxide, which will be collected by a dust collection system. The method of capture and treatment of the waste gases and particulates has yet to be defined but a ceramic filter is being considered. Both companies have indicated that proving the effectiveness of the technology (inclusive of the pellet manufacture and use in the iron making processes) will take up to 12 months. NRW is content for this trial to proceed but requests to be kept informed of progress on a quarterly basis. If the boundaries of the trial need to be changed, then further discussions with NRW will be needed to confirm the changes to trial envelope.

The proposed process is similar to the commercially proven indirect process used to manufacture pure zinc oxide, in which molten zinc is heated to around 1100°C and the zinc vapour 'burnt' in air to make zinc oxide. The zinc oxide dust is then collected in bag filters some distance from the plant to allow the dust and gases to cool as they travel from the zinc bath area to the bag filter.

## **Conclusions**

The complaints issues remain largely unchanged but there does appear to be progress with the numbers of complaints dropping except for the bleeder events in January. Tata have tried to improve how they respond to complaints by their use of a tracking spreadsheet to ensure timely close out and their engagement emails and information to the councillors of the wards that could be affected by the works.

Tata have been working with Darlow Lloyd to develop processes and plans to improve how they manage their current by-products but also their legacy stockpiles of iron containing materials. Natural Resources Wales supports this proposal in principle. Further discussions should be held towards the conclusion of the trial to understand the permitting requirements to authorise the pellet manufacturing process and use of in the iron making processes.

## EPR Compliance Assessment Report

**Report ID:  
CAR\_NRW0018550**

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

|                        |                                         |            |            |
|------------------------|-----------------------------------------|------------|------------|
| Site                   | Port Talbot Steel Works<br>EPR/BL7108IM | Permit Ref | BL7108IM   |
| Operator/Permit holder | Tata Steel UK Limited                   | Date       | 24/03/2016 |

### 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.

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.

### 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 reports 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 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](mailto: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.