Natural Resources Wales permitting decisions

Review of an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Variation and consolidation of a bespoke permit

We have decided to issue the variation for Tremorfa Melt Shop operated by Celsa Manufacturing (UK) Ltd.

The variation and consolidation number is EPR/TP3639BH/V003.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This is a decision document, which accompanies a variation notice being issued following a review of the permit.

It explains:

- **how** we have carried out our statutory review of the Operator's Permit;
- **why** we have decided to vary the Permit as a result of that review; and
- **why** we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

This is a more complex variation than the norm, because it is doing three different things at the same time:

- **First**, it gives effect to our decisions following the statutory review of the existing Permit, following the implementation of the Industrial Emissions Directive (IED) and the publication of Best Available Technique (BAT) Conclusions covering the production of coke, iron & steel. That is what this variation is principally about.
- **Second**, it takes the opportunity to bring earlier variations into an up-to-date, consolidated Permit. These changes have already taken place and we are not re-explaining them, but the consolidated Permit should be easier to understand and use.
- **Third**, it modernises the entire Permit to reflect our current template. The template reflects our modern regulatory permitting philosophy and was introduced because of a change in the governing legislation. This took place when the Pollution Prevention and Control (England and Wales) Regulations 2000 were replaced in 2008 by a new statutory regime under

the Environmental Permitting Regulations 2010 (as amended in 2010) to effectively introduce the IED.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy. Although the wording of some conditions has changed, while others have disappeared because of the new regulatory approach, it does not affect the level of environmental protection achieved by the Permit in any way. We therefore explain only the statutory review in this document.

Structure of this document

- Key issues
- Annex 1 the decision checklist
- Annex 2 Regulation 60 response received

Key issues of the decision

BAT Conclusions for the manufacture of Iron and Steel, which includes electric arc furnace (EAF) steelmaking, were published as a Commission Implementing Decision (2012/135/EU) in the Official Journal of the European Union (OJEU) on 8th March 2012. There are 95 BAT Conclusions for the manufacture of iron and steel; however, not all are relevant to EAF steelmaking: those that are relevant are BAT Conclusions 1 to 18 and 87 to 95. The remaining BAT Conclusions are applicable to other forms of steelmaking.

Compliance with BAT Conclusions must be achieved within four years of their publication in the OJEU, which means that for the manufacture of iron and steel, compliance must be achieved by 8th March 2016. Where operators are unable to demonstrate compliance by this date, they need to justify the use of alternative techniques that are comparable to the specified BAT conclusions. However where BAT Associated Emission Levels (AELs) are specified, operators need to demonstrate that they can meet these AELs, or provide sufficient technical and commercial information that allows the determination of a derogation.

On 3rd September 2013 Natural Resources Wales issued CELSA Manufacturing (UK) Ltd. (hereafter referred to as 'the Operator') with a Regulation 60 information notice. This notice required them to demonstrate compliance with the BAT Conclusions for the manufacture of iron and steel relevant to EAF steelmaking. Natural Resources Wales received a detailed response from the Operator on 30th April 2014. The response is included in full in Annex 2 of this document .

Natural Resources Wales has reviewed this response. Where the Operator has concluded that they have achieved BAT, and we are in agreement, no further information / justification has been sought by us. Where we have identified BAT Conclusions that are not currently being complied with, we have listed them in this section with an explanation of how we have assessed this, and, where necessary, amended the Permit to ensure compliance with the BAT Conclusions.

BAT Conclusion 10:

'BAT is to use the best operational and maintenance practices for the collection, handling, storage and transport of all solid residues and for the hooding of transfer points to avoid emissions to air and water.'

Reason(s) for not being considered to be BAT compliant

Slag Quenching and Handling Area

BAT requires 'hooding of transfer points' to avoid emissions to air, a method which is not employed in the slag quenching and handling area. Slag quenching is carried out in a three-sided enclosure known as the 'cow shed' which has integral water / misters sprays to cool the slag. However the effectiveness of the sprays is questionable: large steam plumes are produced when the slag is quenched which are likely to entrain significant amounts of dust. The release of dust during this process is evident from the staining on the surrounding building walls.

How NRW has addressed this BAT conclusion

The Operator should investigate improved dust suppression options for the slag quenching area. To be incorporated through an Improvement Condition with associated timelines to demonstrate compliance by 2016.

BAT conclusion 16:

'BAT is to determine the order of magnitude of diffuse emissions from relevant sources by the methods mentioned below. Whenever possible, direct measurement methods are preferred over indirect methods or evaluations based on calculations with emission factors.

- Direct measurement methods where the emissions are measured at the source itself. In this case, concentrations and mass streams can be measured or determined.
- Indirect measurement methods where the emission determination takes place at a certain distance from the source; a direct measurement of concentrations and mass stream is not possible.
- Calculation with emission factors.'

Reason for not being considered to be BAT compliant

The Operator does not currently make any attempt to measure diffuse emissions. Certain areas of the site are known sources of diffuse emissions, for example: the slag quenching and handling area; Caster Bay roof vents and the Mineral Site. Fugitive releases from the Caster Bay roof vents are currently subject to existing Improvement Conditions (IC1 and IC2) and it is proving difficult to identify justifiable solutions.

The Operator is hoping that the techniques such as scrap screening will lead to reduced dust generation during the melting process and consequently less fugitive dust released to the Meltshop that then migrates to the Caster Cay. Direct measurement of the releases to atmosphere would be helpful for quantification purposes. Measurements of diffuse emissions are taken in the Meltshop building to confirm compliance with Workplace Exposure Limits (WELs).

How NRW has addressed this BAT conclusion

The Operator should determine the order of magnitude fugitive emissions from the site. To be incorporated through an Improvement Condition with associated timelines to demonstrate compliance by 2016.

BAT conclusion 89:

'BAT for the electric arc furnace (EAF) primary and secondary dedusting (including scrap preheating, charging, melting, tapping, ladle furnace and secondary metallurgy) is to prevent and reduce polychlorinated dibenzodioxins/furans (PCDD/F) and polychlorinated biphenyls (PCB) emissions by avoiding, as much as possible, raw materials which contain PCDD/F and PCB or their precursors (see BAT 6 and 7) and using one or a combination of the following techniques, in conjunction with an appropriate dust removal system:

I. appropriate post-combustion
II. appropriate rapid quenching
III. injection of adequate adsorption agents into the duct before dedusting.

The BAT-associated emission level for polychlorinated dibenzodioxins/furans (PCDD/F) is <0.1 ng I-TEQ/Nm^3, based on a 6 – 8 hour random sample during steady-state conditions. In some cases, the BAT-associated emission level can be achieved withprimary measures only.**'**

Reason for not being considered to be BAT compliant

The Operator has evaluated several options for reducing emissions of dioxins from the EAF. Based on this evaluation they decided to trial the use of a polymer blend in partial replacement of coke as the slag foaming agent. In the trial, 40% of the coke was replaced by a rubber crumb. Coke has a higher chlorine content than rubber crumb, which should lead to a reduction of dioxin formation.

Results of this trial have been provided to Natural Resources Wales. Two periodic monitoring campaigns for dioxins were carried out during the trials, which returned results of 0.0016 ng/m^3 and 0.11 ng/m^3. Natural Resources Wales therefore considers that the Operator needs to further investigate options for the reduction of the formation of dioxins in the EAF in order to comply with this BAT Conclusion.

How NRW has addressed this BAT conclusion

The Operator shall investigate techniques for reducing emissions of polychlorinated dioxins from the EAF at emission point A1. To be incorporated through an

Improvement Condition with associated timelines to demonstrate compliance by 2016.

Revision to emissions to sewer monitoring and emission limits

We have decided to remove the requirement levels of copper and lead in the emissions of casting cooling water to sewer. We have removed these requirements because the operator has demonstrated consistent compliance with them over recent years. We have decided to retain the monitoring requirements for

Annex 1: decision checklist

This document should be read in conjunction with the application and supporting information and permit.

Aspect considered	Justification / Detail	Criteria met Yes
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application. The Industrial Emissions Directive (IED) came into force on the 6th January 2011, and was transposed in England and Wales law by an amendment to the Environmental Permitting Regulations in 2013. The purpose of the Directive is to achieve a high level of protection for the environment, taken as a whole, from the harmful effects of industrial activities. It does so by requiring each of the industrial installations listed in the Directive to comply with the Best Available Techniques (BAT) and associated emission levels (AELs). Each sector will eventually have a BAT reference documents (Bref) published setting BAT and the AELs. An operator has four years from publication in the official journal to ensure they meet BAT and the AELs. However, Article 15(4) of the Directive does allow competent authorities to set less strict emission limit values providing certain criteria are met. The Bref for the Iron and Steel Industry was published in the Official Journal of the European Union in March 2012. The industry now has until March 2016 to achieve BAT and the appropriate AELs. In order to facilitate this process Natural Resources Wales served an EPR regulation 60 notice on Celsa Manufacturing (UK) Limited that required the company to provide us with information on how they aim to achieve the new requirements.	✓
The site		
Site condition report	The operator has provided a description of the condition of the site. We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5).	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
The permit conditions		
Updating permit conditions during consolidation.	We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s). The operator has agreed that the new conditions are acceptable.	✓
Improvement conditions	Based on the information on the application, we consider that we need to impose Improvement Conditions. We have imposed an Improvement Condition to ensure that the requirements of the BAT Conclusions discussed above are met and the site is compliant by March 2016. The wording of the Improvement Condition is as follows: 'The operator shall submit, for approval by Natural Resources Wales, a report setting out progress to achieving the BAT Conclusion AELs where BAT is currently not achieved, but will be achieved by March 2016. The report shall include, but not be limited to, the following: 1) Current performance against the BAT Conclusion AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by 8th March 2016. The report shall address the following BAT Conclusions: 10, 16 and 89.'	✓
Incorporating the application	We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process. These descriptions are specified in the Operating Techniques table in the permit.	✓
Emission limits	We have decided that emission limits should be set for the parameters listed in the permit. These are in line with the relevant BAT Conclusion AELs and associated IED requirements. We have decided to revise the emissions to sewer limits – see **Key Issues** section.	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements have been imposed in order to be compliant with the requirements of the BAT Conclusions. Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.	✓
Reporting	We have specified reporting in the permit.	✓
Operator Competence		
Environment management system	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓

Annex 2: Regulation 60 response from Celsa Manufacturing (UK) Limited