Port Talbot
EAF Project Waste Management Plan – Issued for PAC

Tata Steel UK Limited

September 2024

Turley

Contents

1. Introduction

1.1 Tata Steel UK Ltd ('Tata Steel') has produced this Waste Management Plan (WMP) in support of its proposal for a new Electric Arc Furnace (EAF) steel production facility and associated buildings and infrastructure on land at the existing Port Talbot Steelworks in South Wales.

1.2 This WMP forms part of Tata Steel's Environmental Management System (EMS) for the project. It should be read in conjunction with the Framework Construction Environmental Management Plan (FCEMP). The WMP for the project will be reviewed annually for the first two years post operation, then at least every five years or after a significant change at the installation.

1.3 This WMP has been prepared in accordance with the Definition of Waste: Development Industry Code of Practice (2016) which provides a clear, consistent and efficient process which enables the reuse of excavated materials on-site or their movement between sites.

1.4 The aim of this WMP is to highlight the main waste types produced by the installation when operational and how they will be managed to a minimum and/or to prevent environmental harm. Construction waste is detailed in the FCEMP for the project.

Legislation

1.5 The following are relevant for Tata Steel as the installation operator:

- The Environmental Permitting (England and Wales) Regulations 2016
- The Waste (England and Wales) Regulations 2011
- The Hazardous Waste (England and Wales) Regulations 2005.

Site Process

1.6 The proposed development includes a new EAF steel making facility, 2. No ladle arc furnaces (LF), scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities, together with new and amended transport infrastructure, landscaping and associated development.

Waste Hierarchy

1.7 All waste will be managed in accordance with the waste hierarchy which aims to reduce waste at source and to reduce the quantity that requires final disposal to landfill. This applies to excavated material arising on-site, which will be reused within the site as far as reasonably practicable.

Duty of Care

1.8 Checks will be conducted by the project HSSEQ Manager on waste carriers and waste management facilities, under the responsibility of Tata Steel and the PC. This includes periodical checking of their licenses and environmental permits, as well as on-site audits. Records of checks and audits will be kept by the HSSEQ Manager.

1.9 Example Duty of Care logs to be used by Tata Steel are provided in **Appendix 1**.

Review

2.48 As a new installation, Tata Steel will review and record at least every two years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2. Storage and Management of Waste

Construction Waste

2.1 This section forms part of the proposal's Construction Environmental Management Plan (CEMP) prepared by RSK (ref. 664195).

2.2 The following sections provide detail on the main waste types generated during the construction phase of the EAF steel production facility and how expected construction waste will be managed.

Scrap material

- Steel and iron scraps from structural components
- Non-ferrous metal scraps (copper, aluminium, etc.) from electrical and auxiliary

Concrete and masonry material

- Excess concrete from foundation and structural elements
- Masonry debris from refractory linings and brickwork

Refractory materials

- Damaged or excess refractory bricks used for furnace lining
- Insulation materials such as ceramic fibre and insulating bricks

Insulation and fireproofing

- Leftover insulation panels, boards, and coatings
- Fireproofing materials like sprays, paints, and fire bricks

Electric components

- Scrap wiring, cabling, and conduits
- Damaged or excess electrical panels, transformers, and switchgear

Plumbing and piping

- Excess or cut-off sections of pipes (metallic and non-metallic).
- Unused fittings, valves, and gaskets

Packaging materials

- Cardboard, plastic, and wood from packaging of materials and equipment
- Pallets and crates used for transporting heavy equipment

Protective coatings and paints

- Leftover paints, primers, and coatings.
- Containers and applicators used for applying coatings

Miscellaneous Construction Materials

- Timber and plywood offcuts from formwork and scaffolding.
- Fasteners like bolts, screws, and nails
- Plastic and metal sheeting used for temporary protections and coverings

General debris

- Soil, gravel, and sand from excavation and site preparation.
- Organic waste such as vegetation cleared from the site.
- General rubbish like discarded personal protective equipment (PPE), gloves, and dust masks.

Construction Waste Management

2.3 As detailed in the CEMP, during construction the principal contractor (PC) shall apply the principles of the waste hierarchy (eliminate, reduce, reuse, recycle, dispose) to the waste management of the site. This will be particularly appropriate with respect to the portions of the site containing waste and potentially contaminated materials.

2.4 The PC shall seek to apply these principles via the measures set out below.

Waste Segregation

2.5 The PC will take responsibility for the appointment of an appropriate contractor to segregate waste streams on-site, prior to them being taken to a licensed waste facility for recycling or disposal. All waste incapable of being re-used or recycled on site will be removed from the site. This process will be undertaken by fully licensed waste carriers and taken to licensed waste facilities.

2.6 Wherever possible, the following waste streams will be diverted from landfill:

- The site works shall be designed to retain as much soil on site as possible whilst maintaining protection of human health and the environment.
- The re-use of excavated materials will be applied where possible through optimisation of cut and fill operations.
- All timber and metal is to be segregated on site and sent for recycling.
- All inert waste (e.g. bricks, blocks, concrete) will be segregated on site and used under roads, driveways etc as appropriate.
- All mixed waste removed from site shall be taken to a material recycling facility for further segregation to maximise recycling and recovery.
- All hazardous waste shall be segregated from all other wastes and clearly labelled.
- All other site waste shall be segregated on site.

2.7 Natural Resources Wales (NRW) will be contacted by Tata Steel through the established and open lines of communication if specialist advice on waste segregation and disposal is required.

Waste Collection

2.8 A waste collection area shall be set up before site works start. This area shall be as close to the site compound as possible with adequate hardstanding for the waste containers and unobstructed access for telehandler and waste removal vehicles.

2.9 Front-end loader (FEL) or rear-end loader (REL) skips shall be provided to segregate wastes including timber and metal. A designated area shall be provided for inert wastes, for example bricks, clay pipes and roof tiles. A designated container[s] shall be provided for hazardous wastes, which and must be clearly labelled.

2.10 Wastes shall be collected by a licensed waste carrier. A copy of all Waste 'Duty of Care' documentation shall be held on site.

Waste Transfers

2.11 Duty of Care (DC) documentation will be completed for all waste transfer copies which must be signed by a competent person and kept on file in the site office. Waste transfer notes or hazardous waste consignment notes and DC procedures are to be audited by the PC regularly (monthly as a minimum).

2.12 Spoil and recycled aggregate transfers shall be carried out in accordance with an approved Materials Management Plan and all transfer tickets will be retained on site.

2.13 Road sweepers shall be deployed as necessary. All road sweepers will be removed from site accompanied with a completed waste transfer note from the driver. If road sweepings are inadvertently discharged on site, these should be disposed of appropriately.

Other Measures

2.14 The site will be maintained in a clean, litter-free condition throughout the works.

2.15 This WMP will be made available on site and its requirements understood by all contractors and operatives before starting work on site.

2.16 All waste incidents shall be reported immediately to the site manager at the PC and NRW.

Recording

2.17 An accurate record will be maintained which details all waste disposal from site such as waste types and quantity of disposal route.

2.18 Monthly updates on the amount of waste successfully recycled will be made available to the site manager and displayed in the site office and can also be issued to the council upon request.

2.19 An audit of licensed waste carriers and licensed waste facilities will be conducted by Tata Steel.

Construction Spoil Management

2.20 As detailed in the CEMP, the specific measures relating to land, soil and groundwater waste management are set out below.

Soil Management Plan

2.21 A Soil Management Plan (SMP) will be required, which will include methods to protect soil resources. These should conform to the Construction Code of Practice for the

Sustainable Use of Soils on Construction Sites (Defra, 2009). The Soil Management Plan will include, but not necessarily be limited to, the following:

- Details relating to the separate storage of different types of topsoil, subsoil and mineral substrate should be agreed and defined in advance
- A requirement that, prior to removal and storage, the topsoil should be either bare or with short surface vegetation
- Soil stripping should follow the guidance in the Defra Code of Practice (2009)
- Soil stockpiles should be constructed in accordance with Defra guidance, and not be within 8m of surface water features
- Stockpiles should be maintained by seeding to protect against erosion, minimise nutrient loss and maintain biological activity
- Soil reinstatement should be completed to restore the land to the original quality by returning the soil elements in the correct order and ensuring that drainage and root development will be optimised.

Other Measures

2.22 An assessment of the site in terms of soil and groundwater contamination is being undertaken in accordance with UK guidance relating to the investigation and remediation of contaminated land (Environment Agency (2021a), Land contamination risk management, (LC-RM), April 2021).

2.23 Contaminated soils that need to be excavated, or contaminated groundwater encountered from the site, will be separated from other materials and, wherever reasonably practicable, be treated to remove or reduce the risk. Where practical, material will be reused within the site where it is needed and suitable for use.

2.24 A Materials Management Plan (MMP) will be developed (anticipated to be secured by planning condition) in accordance with the Definition of Waste: Development Industry Code of Practice to set out the processes to be adopted in respect of the reuse of excavated materials;

2.25 Other measures include:

- Contaminated soil disposed of off-site will be taken to a soil treatment facility or an appropriately permitted landfill site
- Fencing or screening will be employed to segregate excavated materials prior to re-use or removal from the site
- Concrete used for the proposed foundation shall meet the design requirements specific to the made ground soil conditions at the site. This shall be determined via soil testing from the site
- Infrastructure pipes and cables will be laid within suitable, clean backfill material.

2.26 A pollution incident control and emergency preparedness plan will be maintained by the PC. This will consider sensitive receptors identified at the site. The pollution incident control and emergency preparedness plan will include a list of measures and processes to be implemented in the event of environmental incidents.

2.27 In the event that excavated material is to be sent for disposal, testing and classification will be undertaken by the contractor in line with industry guidance (including Dispose of Waste to Landfill and WM3 – Guidance on the classification and assessment of waste).

Operational Waste

2.28 Table 2.2 sets out the estimates of volumes of main waste types generated during the operational phase of the EAF steel production facility.

Construction Waste Type	Estimated waste production rate
EAF Slag	Produced at a rate of 85 kg per tonne of liquid metal 255,000 tonnes produced per annum.
Red Dust	83,000 tonnes per annum
Refractory bricks	3,000 tonnes per annum
Foreign Materials in purchased scrap	135,000 tonnes per annum
Process water	1,000 m3/hr

Table 2.1: Estimated operational waste from proposed development

Operational Waste Management

EAF Slag

2.29 This is the by-product of smelting (pyrometallurgical) ores and recycled metals.

2.30 The slag would be tipped, de-metalled and crushed to the required specification. The primary outlet for this material is as road stone, which requires weathering prior to use in asphalt.

Red Dust

2.31 This is the dust generated by the EAF and LF and extracted through the ducting and captured in the bag plant.

2.32 This dust will be sent for recycling to recover the zinc content and produce an iron rich pellet, this is standard practice for production of red dust.

Refractory bricks

2.33 The EAF, LF and the slag pots contain refractory bricks. These wear and need to be replaced, a process that is known as wrecking. The main EAF furnace will be wrecked (the process of removing the refractories) and relined every two weeks to ensure stable operations. The refractories are worn in the aggressive furnace conditions and are consumed in the process until we need to replace them.

2.34 The majority of the bricks will be sent for regeneration (on site) so that they can be re-used on site. These are typically mag-carbon, alumina silicate or alumina chrome products, which Tata Steel currently uses on site and are sorted and processed at the established area of the site (known on the site as the HAA). There may be small quantities of bricks that require disposal but this can be done at the on-site landfill.

2.35 Specific waste compounds and storage areas will be designated and labelled in the final contractor layout plan set by the PC. Waste storage areas will have signs, notices and be clearly marked-out for waste segregation, and all containers and packages clearly labelled.

2.36 The maximum storage capacity of storage areas shall be defined and not exceeded, and the maximum storage period for containers shall be specified and adhered-to.

2.37 Waste storage areas will be inspected daily by the Production Manager and Shift Managers.

Foreign Materials in Purchased Scrap

2.38 There are a certain mass of materials in purchased scrap that would not be desirable in the furnace and would need to be removed prior to charging. This is usually considered to be between 2.5 and 5% of the total scrap mass.

2.39 The majority of these foreign materials are recyclable, such as plastics, non-ferrous metals (e.g. aluminium, copper), and glass. Tata Steel would seek to maximise segregation and recycling of these materials, it is not envisaged a significant proportion would require landfilling.

Process water

2.40 The volume of trade effluent will be vastly reduced compared to current blast furnace operations. The hot mill and cold mill will continue to operate as they currently are in the EAF scenario, but the volume of water discharged by the EAF is very low as the majority of water is evaporated.

2.41 The water would continue to be discharged via Tata Steel's private effluent treatment network to the Long Sea Outfall (LSO), which is regulated under the current permit and any future permit. Current discharge is approximately 2,000m3 per hour at the LSO and this will fall to less than 1,000 m3/hr after the EAF is commissioned.

2.42 The majority of this water would be from existing processes and storm water discharge. The contaminant profile would not change significantly but there would be a reduction in the contaminants associated with coke production.

Storage of Hazardous Substances

2.43 Appropriate storage facilities will be provided for waste substances with specific requirements (e.g., hazardous, flammable, sensitive to heat or light). Hazardous waste substances will be stored exclusively in areas laid with impervious hard standing and provided with secondary containment. These include those set out below.

Lubricating Oils

2.44 Very similar lubricating oils will be required on-site in the future as they are required in the current facility. They will be stored in compliance with the Oil Storage (Wales) Regulations. There is a contract set up to recover used oils on site and this will be utilised wherever possible with the remainder being sent to Energy from Waste facilities.

Fuel (predominantly diesel)

2.45 There are re-fuelling facilities around the major site operations to support the established use of a number of very large vehicles. These will be compliant with Oil Storage (Wales) Regulations and will allow the safe refuelling of vehicles moving steel and scrap.

Water Treatment Chemicals

2.46 Chemicals are needed at the water treatment plants but predominantly at the cooling towers that need regular dosing to avoid the proliferation of Legionella and other bacteria in the warm water. These processes are well established on site and storage facilities and procedure are already in place.

3. References

3.1 CL:AIRE (2011), The Definition of Waste: Development Industry Code of Practice. Version 2. https://www.claire.co.uk/projects-and-initiatives/dow-cop

3.2 European Commission (2008), Waste Framework Directive. 2008/98/EC. https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en

3.3 Natural Resources Wales (2023), Guidance to help you comply with your environmental permit. https://naturalresources.wales/permits-and-permissions/environmental-permits/guidance-to-help-you-comply-with-your-environmental-permit/?lang=en

3.4 Natural Resources Wales (2023), How to complete a hazardous waste consignment note - Guidance. Natural Resources Wales. https://naturalresources.wales/guidance-and-advice/environmental-topics/waste-management/how-to-complete-a-hazardous-waste-consignment-note/?lang=en

3.5 Natural Resources Wales (2023), Submit your hazardous waste return. https://naturalresources.wales/guidance-and-advice/environmental-topics/waste-management/submit-your-hazardous-waste-return/?lang=en

3.6 NRW (2021), Waste classification technical guidance, Guidance on the classification and assessment of waste (1st Edition v1.2.GB) Technical Guidance WM3. https://www.gov.uk/government/publications/waste-classification-technical-guidance

3.7 TATA Steel Outline Construction Environmental Management Plan (Outline CEMP) – Prepared by RSK (July 2024)

3.8 UK Government (2005), The Hazardous Waste (England and Wales) Regulations 2005. https://www.legislation.gov.uk/uksi/2005/894/contents/made

3.9 UK Government (2016), The Environmental Permitting (England and Wales) Regulations 2016. https://www.legislation.gov.uk/uksi/2016/1154/schedule/1/made

Appendix 1: Example Duty of Care Logs

Waste Carriers Details

EA Public Register: https://environment.data.gov.uk/public-register/view/index

Company Name	Company Details (Full Address & Postcode)	Registration number	Expiry date (dd/mm/yyyy)	Date checked with EA / SEPA / NRW (dd/mm/yyyy)	Details match those on waste transfer notes?	Waste Last Carried

Waste Destination Environmental Permit or Exemption Details

Company Name	Location Details (Full Address & Postcode)	Type of Facility	Reused rate (%)	Recycled rate (%)	Recovered rate (%)	Landfill rate (%)	Env Permit or Exemption Reference Number	Date checked with EA / SEPA / NRW (dd/mm/yyyy)	Env Permit or Exemption conditions meet waste streams?	Receiving location can accept planned volume of waste?	Journey time from site to destination (minutes)

Movement number	Date of movement (dd/mm/yyyy)	Ticket number	Waste description	LOW / EWC code	Construction, demolition or excavation	Waste carrier	Waste destination	Type of container	Measure or volume of container	Individual container volume	Number of loads per day	Tonnes	Total
1													
2													
3													
4													
5													
6													
7													

Turley Office
Cardiff

Client
TATA Steel UK Limited

Our reference
TATT3054

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