Swadlincote Energy Recovery Facility (SERF)

Waste Management Plan

on behalf of R&P Clean Power Limited

Application for Environmental Permit

May 2024

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Revision	Author	Date	Quality Check	Date	Review	Date
1	CAB	Sept. 2023	PBD	Nov. 2023	CJB	Nov. 2023

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1 Introduction

This report details how wastes generated at the Swadlincote Energy Recovery Facility (SERF) are stored and handled, with a view to minimising the overall volume of waste generated.

Wastes will be managed in accordance with the requirements of the Environment Agency (EA) guidance, including Sector Guidance S5.06 on the recovery and disposal of hazardous and non-hazardous waste, and the EPR 5.01 on the Incineration of Waste, and the specific guidance on the avoidance, recovery, and disposal of wastes.

The procedures described are in compliance with indicative Best Available Techniques (BAT) described in these documents.

Careful control of the processes on-site will be taken, such as combustion of waste, re-circulation of process water and reagents used in pollution abatement, to ensure that the wastes streams generated are minimised as far as is practicable.

Where the process generates wastes, these will be recycled as far as possible. Waste will be sent off-site for disposal where there are no other practicable options for its management. Waste will be carefully managed in accordance with written procedures at all times in order to minimise potential impacts on the environment.

Wastes will be handled and stored in a safe manner to ensure that they do not escape the Facility, or otherwise create the potential for harm. Each waste stream will be stored in its own designated area and in sealed containers where appropriate.

All wastes, whether stored internally or externally (in sealed containers), will be on an area of impermeable hardstanding provided with a sealed drainage system.

Wastes will be handled in accordance with Duty of Care procedures. Waste transfer notes will be prepared for each waste stream, and copies will be retained at the on-site office. These will identify the waste, how it is contained, its quantity, and specific measures required in its handling, and the date that it was sent off-site, along with the details of the waste producer, carrier, and destination.

Where any waste produced has hazardous properties, it will be handled in accordance with the Hazardous Waste (England and Wales) Regulations 2005 (as amended). The Facility will be registered as a hazardous waste producer and an appropriate consignment note will be raised.

A record will be maintained in order to records details of the wastes that enter and exit the Facility, including:

- Quantity of waste;
- Type of waste;
- Process that generated the waste;
- Classification under the list of waste regulations (in accordance with the WM3 methodology);
- Chemical analysis (as required); and
- Details of the receiving site.

2 Waste (Fuel) Acceptance Procedure

The fuel to be used in the system will be limited to the following:

- 19 12 10 - Combustible Waste (Refuse Derived Fuel)
- 19 12 12 - Other Wastes (Including Mixtures of Materials) from Mechanical Treatment of Wastes other than those mentioned in 19 12 11
- 20 03 01 - Mixed Municipal Waste
- Other wastes listed in Table 1b of Form 3B

Fuel supply contracts will be held with suppliers that will deliver fuel directly to the SERF. The contracts will stipulate that fuel is delivered in accordance with the fuel specification and the Environmental Permit. Pre-acceptance and acceptance checks may include audits of waste producers and/or suppliers to review their operations and confirm that the waste which they are transferring to the SERF is in accordance with the correct waste descriptions, specifications and EWC codes.

A conceptual flow diagram outlining the fuel acceptance procedures is included as Appendix 1 to this report.

Fuel will be brought to the Facility by trucks. The fuel will be unloaded directly in the bunker. All fuel used in the process will be non-hazardous in nature. The fuel is a Controlled Waste and will be accepted in accordance with procedures set out in Sector Guidance Note (SGN 5.06).

Vehicles will enter the Facility and pass over the weighbridge. Following completion of first waste acceptance checks at the weighbridge, they will travel to the Waste Reception Hall and will be directed to the designated fuel unloading point. Weighbridge staff may carry out visual inspections of consignments at the weighbridge (e.g. when the Operator has reasons to believe that the load may contain unacceptable waste or as part of checks carried out under the fuel supply agreements' delivery protocols).

Once the vehicle is fully within the Waste Reception Hall, the door will close immediately to minimise any escape of process air from within the fully enclosed building. This should ensure that the potential for odour and dust release is minimised.

Visual inspection will take place by the plant operatives (via CCTV) and crane operator during vehicle tipping/unloading. Unloading operations will be stopped if unsuitable waste is observed exiting the vehicle trailer. It will also be possible to use the crane grab to remove any unsuitable or non-combustible items which are identified by the crane driver. These items will be removed from the bunker and placed in the quarantine area for further inspection, prior to transfer offsite to a suitable disposal/recovery facility.

In some instances, and when it is safe to do so, staff may visually inspect the load when the trailer doors are opened by the driver prior to unloading. If necessary, drivers may be requested to tip the load, or part of it, within the reception hall to allow a more thorough inspection of the consignment.

Once the vehicle has discharged its load and has been cleared to leave the Waste Reception

Hall by the Mobile Plant Operator or Operations Technician, the driver will be directed to exit by Facility signage through an available reception door to return to the weighbridge.

The reception hall is kept at negative pressure by the operation of the boiler's combustion process air intake fan which sucks the air from the hall and provides adequate number of air changes within the hall. In situations where the boiler fan may not be available due to breakdown or maintenance, the auxiliary air extraction system will provide permanence of negative pressure within the hall to prevent odour escape. The auxiliary system will consist of an appropriately sized air extraction fan passing through a wet scrubbing unit and/or activated carbon filters.

Detailed procedures outlining the pre-acceptance, acceptance, and rejection procedures will be developed prior to the commencement of operations.

3 Waste Production

The measures below are in accordance with the Waste Incineration Best Available Techniques Reference document (BREF) and the relevant Sector Guidance Notes, EPR 5.01. All appropriate measures are applied to prevent emissions, and steps have been taken to treat waste in accordance with the Waste Hierarchy and minimise the impact on the environment.

Table 1 identifies the waste that will be produced at the Facility that may require removal off-site. Information regarding the waste's management, storage and handling is also included. Tonnages stated for IBA and APCr shall be regarded as indicative only as they are dependent on the ash content of the fuel and concentration of pollutants which require abatement in the FGT system.

Table 1: Waste streams arising from the Facility

Waste arising, waste chemical composition and waste storage				
Waste	**Hazardous Properties**	**Approx. annual tonnage**	**Source**	**Storage**
Incinerator Bottom Ash (IBA)	Non-hazardous	49,406 t.p.a	Combustion process. Incinerator grate. Fine ash removed from boiler tubes and economiser and routed to the IBA handling system.	Collection by water cooled drag-chain conveyor, and conveyor to enclosed concrete walled above ground bunker.
APC (Air Pollution Control) Residues	Hazardous	12,600 t.p.a	Removed from filter bags in Flue gas Treatment Plant.	The APC residues will be stored in a sealed silo prior to its collection by tanker.
Rejected wastes	Potential for hazardous properties	Estimated at <1.5 t.p.a	Material rejected for treatment at the plant.	Waste which is unsuitable for treatment will be stored in two outside lockable skips in the external area of the Facility.
Rejected wastes	Non-hazardous	Estimated at <1,000 t.p.a	Material rejected for treatment at the plant.	Waste stored in quarantine area prior to removal to appropriate disposal.

Oil wastes	HP7 Carcinogenic	Approximately 6 t.p.a	Plant maintenance.	Stored in drums or other suitable container within a bunded area.
General wastes	Non-hazardous	Estimated at <10 t.p.a	Cleaning and maintenance wastes, general office wastes.	Materials placed in waste reception bunker.
Process effluent	Non-hazardous	Approximately 43,800 t.p.a	Boiler blowdown, demineralisation plant rejects, cleaning of equipment and surfaces	Process effluents will be used as IBA quenching water. Any excess process effluents will be tankered off site and disposed of as required.

3.1 Waste Minimisation

The SERF will seek to minimise the waste produced by the combustion processes at the plant, and to limit the environmental impact of the waste produced. A waste minimisation audit will be undertaken at least every four years to identify opportunities for the reduction of waste. The purpose of this audit will be to seek to minimise the volume of waste generated and elevate the processes of any remaining wastes as high up the Waste Hierarchy as possible, in accordance with aims of the Waste Framework Directive (WFD).

The amount of waste generated by the Facility will be minimised by a combination of management techniques. The adoption of pre-acceptance checks by the operator will aim to minimise the number of rejected feedstock loads to the Facility. These checks aim to ensure the acceptability of the material prior to dispatch, ensuring that the potential for loads to be rejected once tipped on-site is minimised as far as is practicably possible.

In addition to the regular streams generated by the Facility, detailed in Table 1 above, there will be an ongoing requirement to replace equipment. There will also be a preventative maintenance plan implemented which will aim to minimise the frequency of replaced equipment.

3.2 Recovery and Disposal Options

The recovery or disposal option of each waste stream is detailed below.

Where possible all wastes will be segregated for recycling. Waste will only be sent for disposal where there are no practical options for its recycling or other recovery. Any disposal of waste to land will be at a fully authorised landfill site.

Table 2: Recovery and Disposal of waste

Recovery and Disposal of Waste	
Waste Stream	**Destination**
Incinerator bottom ash (IBA)/boiler ash	This will be recovered on-site for use in an ARF Facility.
APC Residues	APC residues will be loaded into sealed trucks and disposed of at an appropriate authorised landfill facility. Options will be reviewed on a regular basis to identify any recycling opportunities. Handling will be in accordance with the Hazardous Waste Regulations 2005 (as amended).
Rejected waste load	Each rejected waste load type will be assessed on a case-by-case basis. Wastes will be sent to an appropriately permitted local facility.
Oil wastes	Waste oil will be sent to an oil recycling facility for reprocessing in accordance with the Hazardous Waste Regulations.
General waste	General waste, such as those generated from on-site offices and on-site cleaning procedures will be placed in the waste reception area for collection. Any spent components that have been

	replaced will also be placed in the waste reception area.
Waste water	Waste water is reused on-site wherever possible, or tankered off-site for disposal.

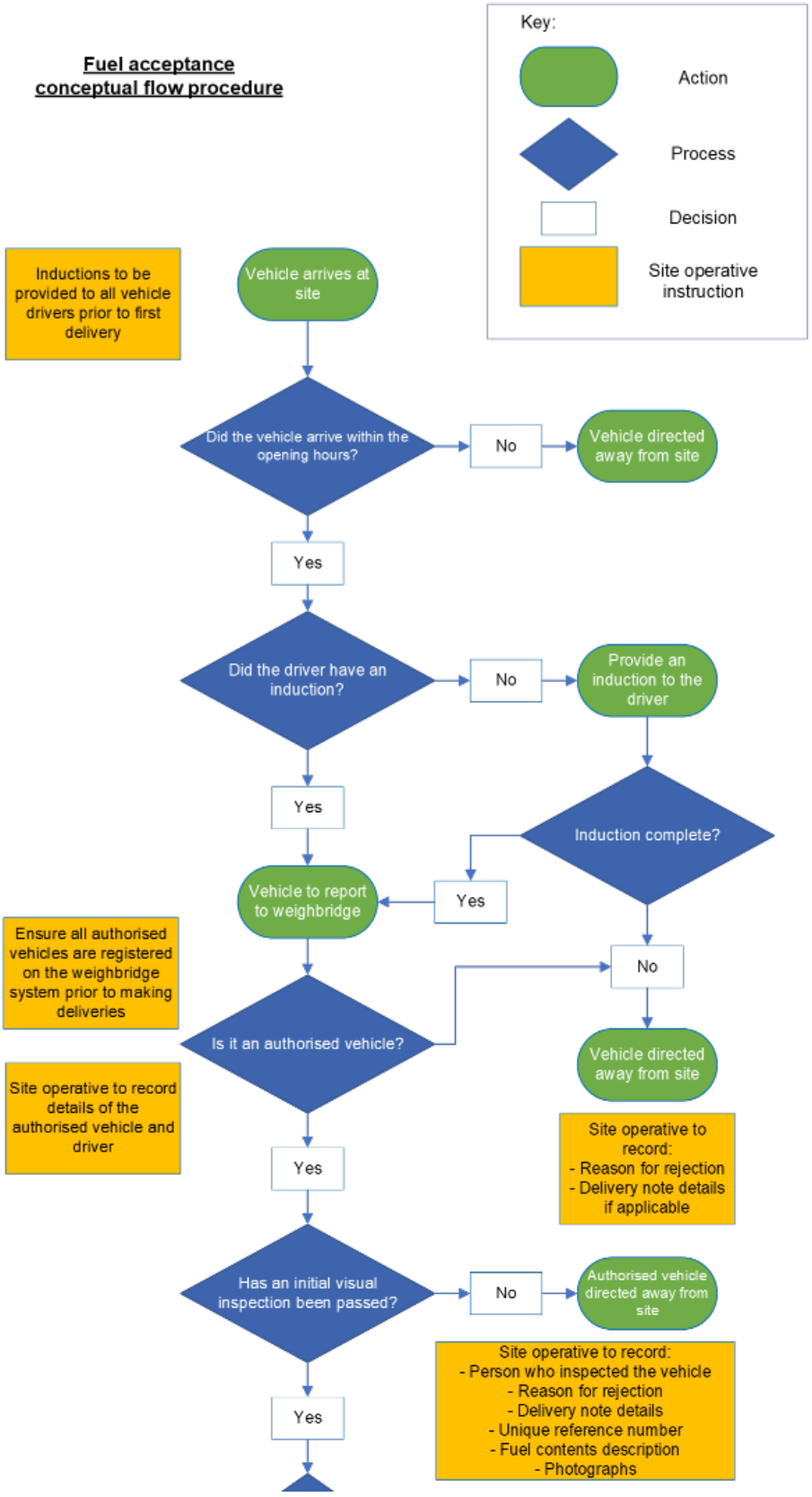
The SERFs initial plans are to send APC residues to an authorised landfill facility. However, options for recycling this material as Plasmarok or similar products, that neutralise or immobilise the hazardous constituents making APC residues suitable for use as a secondary aggregate, will be kept under review. Should opportunities arise to move the handling of this waste up the waste hierarchy, these will be adopted.

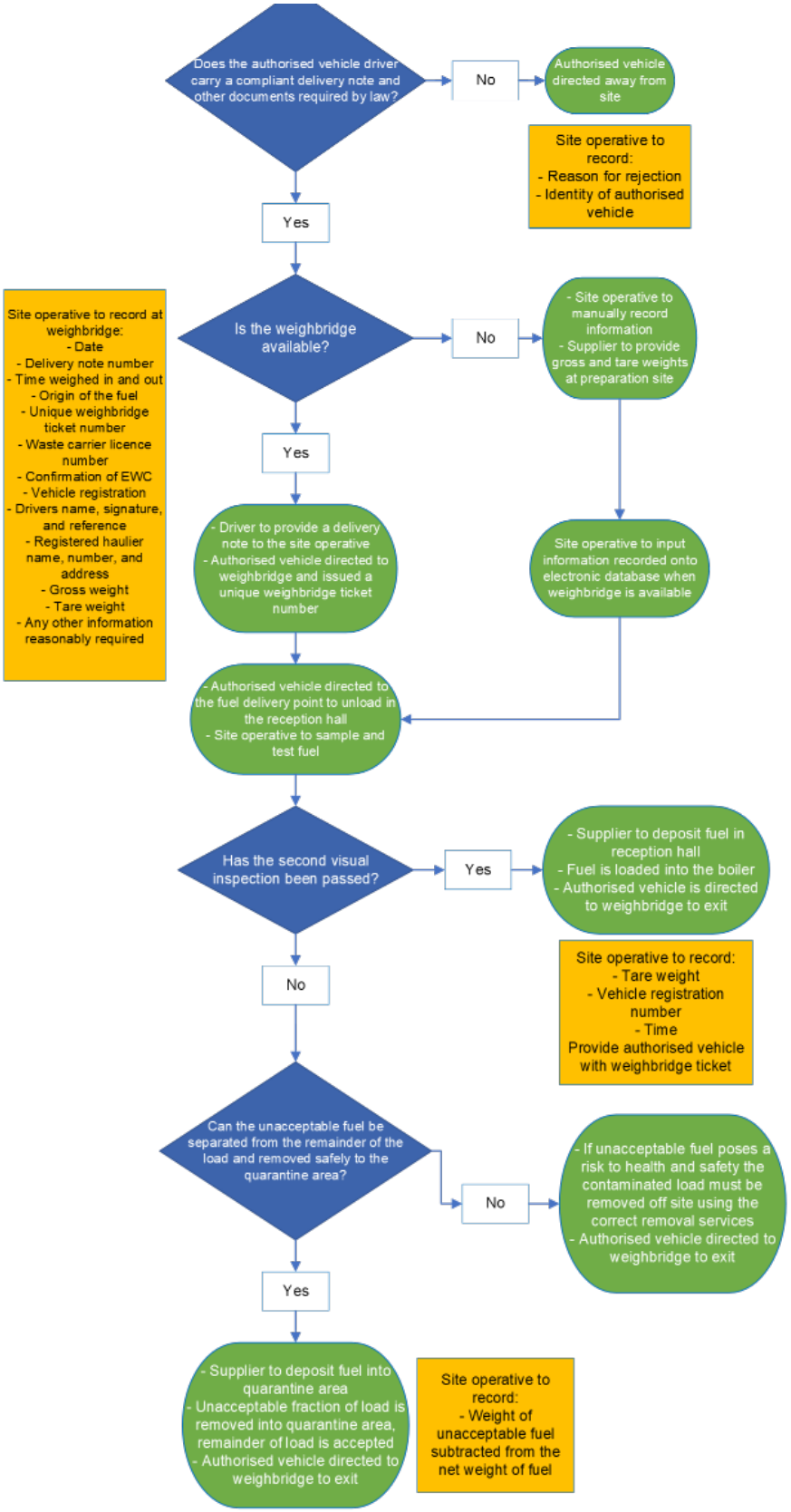
The Duty of Care for waste will be followed and all waste carriers will be registered with the EA. All waste recovery / disposal facilities utilised will be checked to ensure that they hold the correct environmental permits, and that waste is recovered or disposed of correctly and without harm to the environment.

Options for waste recovery / disposal will be reviewed at least once every four years to ensure that the chosen route continues to reflect the best environmental option.

Appendices

Appendix 1 – Fuel acceptance conceptual flow procedure




Does the authorised vehicle driver carry a compliant delivery note and other documents required by law?
No
Authorised vehicle directed away from site
Site operative to record:
- Reason for rejection
- Identity of authorised vehicle
Yes
Site operative to record at weighbridge:
- Date
- Delivery note number
- Time weighed in and out
- Origin of the fuel
- Unique weighbridge ticket number
- Waste carrier licence number
- Confirmation of EWC
- Vehicle registration
- Drivers name, signature, and reference
- Registered haulier name, number, and address
- Gross weight
- Tare weight
- Any other information reasonably required
Is the weighbridge available?
No
- Site operative to manually record information
- Supplier to provide gross and tare weights at preparation site
Yes
- Driver to provide a delivery note to the site operative
- Authorised vehicle directed to weighbridge and issued a unique weighbridge ticket number
Site operative to input information recorded onto electronic database when weighbridge is available
- Authorised vehicle directed to the fuel delivery point to unload in the reception hall
- Site operative to sample and test fuel
Has the second visual inspection been passed?
Yes
- Supplier to deposit fuel in reception hall
- Fuel is loaded into the boiler
- Authorised vehicle is directed to weighbridge to exit
No
Site operative to record:
- Tare weight
- Vehicle registration number
- Time
Provide authorised vehicle with weighbridge ticket
Can the unacceptable fuel be separated from the remainder of the load and removed safely to the quarantine area?
No
- If unacceptable fuel poses a risk to health and safety the contaminated load must be removed off site using the correct removal services
- Authorised vehicle directed to weighbridge to exit
Yes
- Supplier to deposit fuel into quarantine area
- Unacceptable fraction of load is removed into quarantine area, remainder of load is accepted
- Authorised vehicle directed to weighbridge to exit
Site operative to record:
- Weight of unacceptable fuel subtracted from the net weight of fuel