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Beddington EP Variation



Viridor South London Limited

Supporting Information – Detailed EP Variation

Document approval

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Non-technical Summary

Viridor South London Limited (Viridor) operates a two-stream Energy Recovery Facility (ERF) at Beddington Lane, Croydon. An Environmental Permit (EP) for the operation of the ERF was originally granted on 23 July 2013. Viridor has subsequently been granted 3 variations since the EP was granted. In addition, on 18 December 2020, the EP for the ERF was transferred from Viridor Waste Management Limited to Viridor South London Limited and the new permit reference EPR/GP3305LN issued.

Viridor also operates a Waste Transfer Station (WTS) which is located adjacent to the ERF. A separate standard rules (SR2008No5) EP was granted for the operation of the WTS on 17 March 2018, with the EP subsequently varied to an SR2015No10 on 20 June 2018 to permit treatment and asbestos storage. In addition, on 18 December 2020, the EP for the WTS was transferred from Viridor Waste Management Limited to Viridor South London Limited – the permit reference renumbered as EPR/JB3902FZ.

Within this application, Viridor is applying for a number of additional changes to the EP for the ERF, summarised as follows:

- Increase in the processing capacity of the ERF to 382,286 tonnes per annum;
- Update the status of all pre-operational and improvement conditions within the EP;
- Amend all of the emission points locations stated within the EP for discharges to surface water and sewer, for both the ERF and WTS, and incorporate an additional emissions point 'A4' for emissions from the shredder at the WTS;
- Consolidate the EP for the WTS into the EP for the ERF, so that the two activities are regulated under a single EP; and
- Include additional EWC codes for the operation of the WTS.

Viridor understands that this application should be determined as a Substantial Variation.

Contents

Non-technical Summary	3
1 Introduction.....	6
1.1 Background	6
1.2 Proposed changes	6
1.3 Type of variation	6
2 Proposed changes to ERF capacity	8
2.1 Increase in thermal load performance	8
2.2 Reduction of combustion air temperature	8
2.3 Revised Firing Diagram & Maximum Capacity	9
3 Emissions points	11
3.1 Discharges to surface water and sewer	11
3.2 Emissions point for shredder at WTS.....	11
4 Additional EWC codes – WTS	12
4.1 Further details on additional EWC codes.....	12
4.2 Waste acceptance and pre-acceptance procedures.....	14
4.2.1 Waste pre-acceptance procedures.....	14
4.2.2 Waste acceptance procedures	15
4.2.3 Unacceptable wastes.....	16
4.3 Storage, handling and containment measures	17
4.4 Transfer of clinical and hazardous wastes off-site.....	18
5 Pre-operational and improvement conditions – ERF	19
6 Consolidation of EPs.....	22
6.1 Activities.....	22
6.2 Operating techniques.....	23
7 Environmental impacts	24
7.1 Air Quality	24
7.1.1 ERF	24
7.1.2 WTS.....	24
7.2 Raw material consumption	24
7.2.1 ERF	24
7.3 Residues generation.....	26
7.4 Energy efficiency	26
7.4.1 ERF	26
7.5 Fire prevention plan.....	27
7.6 Noise	27
7.7 Odour	28
8 Management systems	29
Appendices	30
A Plans and drawings.....	31

B	Environmental Risk Assessment.....	32
C	Air Quality Assessments	33
D	EWC codes.....	34
E	Waste Acceptance Protocol	41
F	Furnaceflame Datasheet	42

1 Introduction

1.1 Background

Viridor South London Limited (Viridor) operates a two-stream Energy Recovery Facility (ERF) located at Beddington Lane, Croydon. An Environmental Permit (EP) for the operation of the ERF was granted on 23 July 2013. Viridor has subsequently been granted 3 variations since the EP was granted. In addition, on 18 December 2020 the EP for the ERF was transferred from Viridor Waste Management Limited to Viridor South London Limited and the new permit reference EPR/GP3305LN issued.

Viridor also operates a Waste Transfer Station (WTS) which is located adjacent to the ERF. A separate standard rules (SR2008No5) EP was granted for the WTS on 17 March 2018. Viridor subsequently applied to vary the EP to a SR2015No10 standard rules permit – this variation was granted on 20 June 2018. In addition, on 18 December 2010, the EP for the WTS was transferred from Viridor Waste Management Limited to Viridor South London Limited – the permit reference remained as EPR/JB3902FZ.

Viridor is proposing a number of changes to the ERF EP – these are set out in section 1.2 below. This document contains the information for the application for a variation to the ERF EP, including consolidation of the WTS EP with the ERF EP.

Section 1 of this document provides a brief overview of the applicant/application including the proposed changes and type of variation, whilst sections 2 to 6 describe the proposed changes in further detail. Section 7 considers the environmental impact associated with the proposed changes including the air quality impacts as a result of the proposed changes.

1.2 Proposed changes

Within this application, Viridor is proposing the following changes to the EP:

- Increase in the processing capacity of the ERF to 382,286 tonnes per annum;
- Update the status of all pre-operational and improvement conditions within the EP;
- Amend the emission points locations and associated emission limits (where appropriate) stated within the EP for discharges to surface water and sewer, and incorporate an additional emissions point 'A4' for emissions from the shredder at the WTS;
- Consolidate the EP for the WTS into the EP for the ERF, so that the two activities are regulated under a single EP; and
- Include additional EWC codes for the operation of the WTS.

1.3 Type of variation

The Environment Agency's guidance on Charging Schemes states that there are four types of variations – administrative, minor technical, normal and substantial.

Viridor acknowledges that the proposed changes will not constitute either an administrative or minor technical variation.

The Environment Agency has published guidance (Regulatory Guidance Note 8 – Substantial Change) which defines a substantial change. It is acknowledged that the guidance has subsequently

been withdrawn but any replacement guidance is not as prescriptive. The guidance defined a substantial change as:

'... a change in operation of installations or mining waste facilities, which in our opinion may have significant negative effects on human beings or the environment. Certain changes are automatically regarded as substantial, namely:

- a. a change in operation of a Part A installation which in itself meets the thresholds, if any, set out in Part 2 of Schedule 1 EPRs; or*
- b. a change in operation of an incineration or co-incineration plant for non-hazardous waste which would involve the incineration or co-incineration of hazardous waste.'*

It is understood that the increase in capacity to determine whether the application should be for a substantial variation should be calculated based on the originally permitted capacity, not allowing for any variations to the EP. The original EP for the ERF allowed for the processing of up to 302,500 tonnes of waste per annum. With this application, it is proposed to increase the processing capacity of the ERF to 382,286 tonnes per annum. The 'additional' waste throughput per annum compared to the originally permitted capacity is equivalent to 79,786 tonnes per annum. Assuming an increased availability of 8,760 hours per annum (as is proposed in this application), this is equivalent to an additional 9.1 tonnes per hour of waste compared to the original application.

The threshold for a non-hazardous waste incineration facility within Part 2, Schedule 1, Section 5.1 (b) of the Environmental Permitting Regulations is 3 tonnes per hour. Therefore, the proposed increase in capacity is more than the threshold in 'Part 2 of Schedule 1 EPRs'. Therefore, Viridor considers that this application is a 'Substantial Change' to the EP, and the application should be determined as a Substantial Variation.

2 Proposed changes to ERF capacity

It is proposed to increase the waste throughput (capacity) of the ERF to allow for operation at the 110% Maximum Continuous Rating (MCR) on the firing diagram.

Operation at the 110% point on the firing diagram would be achieved through changes to the combustion control system associated with the operation of the ERF. This could be achieved by the following:

- an increase in thermal load performance; and/or
- a reduction in the combustion air temperature (850°C will still be maintained).

These changes will allow for an increase in the hourly processing capacity of the ERF. The changes are described in further detail within sections 2.1 and 2.2. The maximum waste processing capacity of the ERF is then calculated and defined in section 2.3 based on the firing diagram for the ERF.

2.1 Increase in thermal load performance

Following experience on other recently constructed EfW facilities in the UK, the technology provider has applied a revised combustion control concept which optimises the waste feed control and improves the stability of combustion. This enables an increase in the processing throughput and allows the ERF to operate with a significantly lower oxygen content in the furnace than originally developed for the ERF. This enables the ERF to operate at an increased thermal load. Viridor utilises this revised combustion control concept on its Avonmouth Energy from Waste facility. The revised combustion control concept can be implemented at the ERF without making any significant changes to the design and operation of the ERF through making changes to the settings within the combustion control system. However, minor modifications will be required to be made to the steam circuit to ensure stable operation under the revised combustion conditions. Other plant items such as the waste feed systems, ID fans, safety control systems, vents and the ACCs will not be affected by the proposed changes due to operational margins which have been allowed for within the design of the ERF.

The increase in the thermal capacity of the ERF will result in more heat being available in the first section of the boiler to achieve the required 850°C temperature and 2-seconds residence time requirements of Article 50 (2) of the Industrial Emissions Directive (IED).

Implementing the changes to the combustion control concept will result in the ERF generating up to approximately 29.5 MWe, equivalent to an increase of around 3.4 MWe.

2.2 Reduction of combustion air temperature

In addition to the lower oxygen content, the revised combustion control concept will also enable a reduction in the combustion air temperature to be achieved. This will result in an additional increase to the hourly waste throughput of the ERF.

Data from other operational facilities has demonstrated that the proposed reduction in combustion air temperature will not result in a significant increase in the unburnt content of the IBA generated.

The IBA will continue to be measured to ensure that it achieves the burnout requirements of Article 50(1) of the IED (requiring the Total Organic Carbon (TOC) content of the bottom ash to be less than 3%; or Loss on Ignition (LOI) of the bottom ash to be less than 5%). Following implementation of the revised combustion control concept, if it was identified that the reduction in the combustion air temperature resulted in an elevated TOC or LOI content of the IBA, the combustion temperature would be increased to ensure sufficient burnout of the waste.

2.3 Revised Firing Diagram & Maximum Capacity

A copy of the firing diagram for the ERF is presented in Figure 1 below. A larger copy is included within Appendix A.

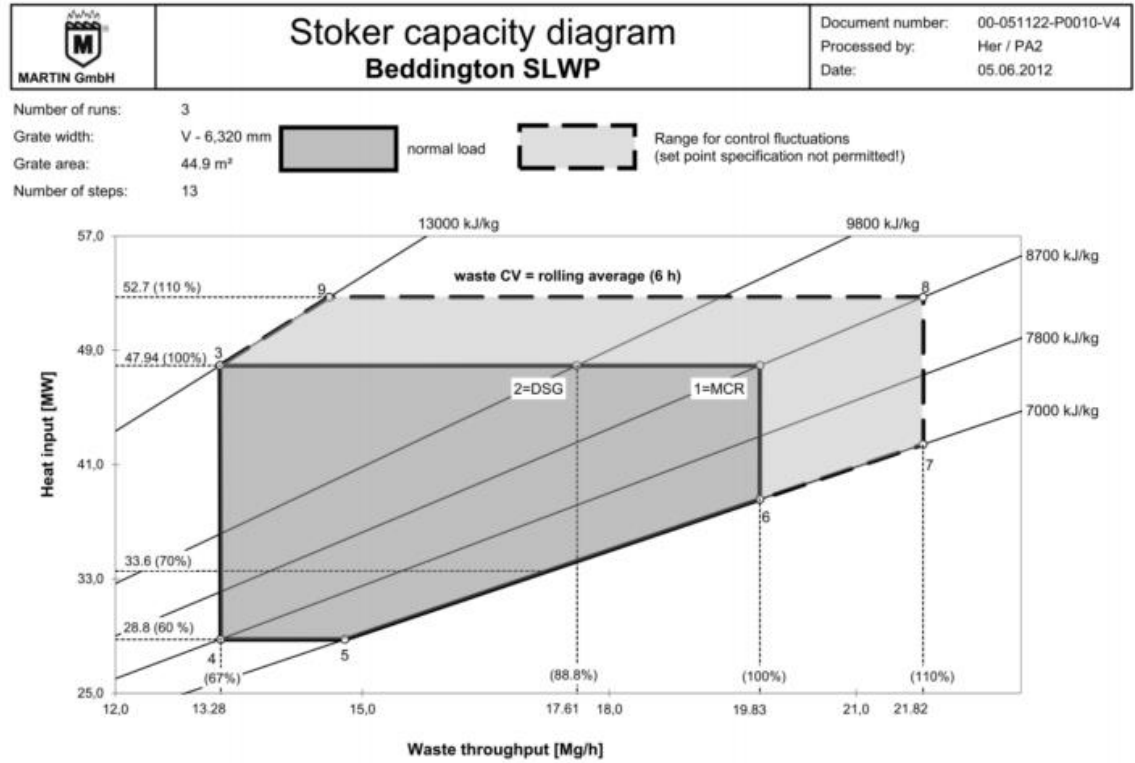


Figure 1: Firing diagram

As can be seen from the firing diagram, the maximum hourly waste throughput per line will increase from 19.83 tonnes per hour (100%) to approximately 21.82 tonnes per hour (110%), assuming an NCV of approximately 8.7 MJ/kg. The proposed changes will result in an increase in gross power generation from around 26.1 MWe to 29.5 MWe.

The ERF will have a theoretical availability of 8,760 hours per annum, assuming that there are not any periods of planned or unplanned shutdown in any year. the maximum annual capacity can be calculated as follows:

$$\begin{aligned}
 \text{Maximum Annual Plant Capacity} &= \text{Maximum processing capacity (tph)} \times \text{Operational Period} \\
 &= 21.82 \text{ tonnes per hour} \times 8,760 \text{ hours} \\
 &= 191,143 \text{ tonnes per annum per line} \\
 &= 382,286 \text{ tonnes per annum}
 \end{aligned}$$

Therefore, the maximum annual capacity of ERF should be 382,286 tonnes per annum, based on a maximum hourly waste processing capacity of 21.82 tonnes per line per hour with an NCV of approximately 8.7 MJ/kg, and an operational availability of 8,760 hours.

If the ERF is not permitted to operate at the proposed capacity, the waste which would otherwise be received by the ERF could need to be transferred to an alternative waste management facility. Whilst alternative waste management facilities have not been specifically identified, Viridor have

identified only limited availability at alternative ERFs. Therefore, it is possible that the waste would otherwise be transferred to landfill facilities and not necessarily alternative EfW sites.

3 Emissions points

3.1 Discharges to surface water and sewer

Table S3.2 of the EP for the ERF allows for a single discharge point 'S1' of process water to sewer. However, the EP states that the discharge location is "to be agreed" with the EA. Furthermore, the current EP for the ERF does not currently allow for any discharges of surface water. Therefore, it is proposed to update Table S3.2 within the EP to allow for the discharge of uncontaminated surface water off-site ('W1'), discharges of surface water from the car park ('W2'), and to update the emissions point location for 'S1'.

The current EP for the WTS (Ref: EPR/JB3902FZ) allows for the emissions of the following substances not controlled by emission limits:

- liquids may be discharged into a sewer subject to a consent issued by the local water company;
- liquids may be taken off-site in a tanker for disposal or recovery; and
- clean surface water from roofs, or from areas of the site that are not being used in connection with storing and treating waste, may be discharged directly to surface waters, or to groundwater by seepage through the soil via a soakaway.

The proposed changes to the WTS will not result in any changes to the drainage arrangements. However, as the WTS will be consolidated with the ERF EP, the emissions points listed within the EP will be for the whole (combined) site. Therefore, it is proposed to update the emissions points table within the EP to incorporate all emissions points from the combined site.

Surface water drainage from the WTS is combined with the EfW surface water drainage and released to the main pond, located to the northwest of the site, via emission points W1. Process effluents from the WTS will also be released via a shared emissions point with the EfW (S1). A revised emission points drawing for both the ERF and WTS is presented within Appendix A. The location of S1 reflects the point where the discharge will leave the Installation Boundary. However, it should be noted that sampling will be undertaken at the decantation pit, prior to discharge of the effluent off-site.

Furthermore, an emissions point 'W2' is also included within the drawing presented within Appendix A, to allow for surface water discharges from the car park area.

It is not currently proposed to incorporate any monitoring requirements into the EP for emissions to water/sewer. Viridor will comply with any Trade Effluent Consents held with the sewerage undertaker which may include monitoring requirements; however, Viridor considers that this does not fall under the scope of the EP.

3.2 Emissions point for shredder at WTS

The current permit allows for the operation of a shredder at the WTS. It is noted that an emission point is not included within the current EP for emissions to air from the shredder. Therefore, as part of this variation, it is proposed to incorporate an additional emissions point for emissions to air from the shredder. The emissions to air from the shredder are located at emission point A4 within the emissions point drawing presented in Appendix A.

4 Additional EWC codes – WTS

A consolidated list of EWC codes proposed to be accepted at the WTS is presented within Table 7 in Appendix D. For the avoidance of doubt, this should replace the current list of EWC codes for the WTS. As can be seen from the list, a number of EWC codes have been removed compared to the original WTS permit, and a number of additional EWC codes have been added – these are shown in red text within the table.

In accordance with the EP, the only hazardous waste which can currently be accepted at the WTS is asbestos, and it must be double-bagged and stored within secure, lockable containers.

In applying for this variation, it is proposed to accept additional hazardous and clinical EWC codes at the WTS for temporary storage and subsequent transfer. As the EP for the ERF does not allow for the incineration of hazardous wastes, it is not proposed to transfer hazardous wastes to the adjacent ERF for incineration.

Sections 4.1 to 4.4 present the proposed operating techniques associated with the acceptance, storage and handling of clinical and hazardous waste at the WTS.

4.1 Further details on additional EWC codes

The following EWC codes are classed as ‘mirror non-hazardous’ or ‘absolute non-hazardous’ waste codes. Many of these EWC codes are similar in nature to wastes which the WTS is already permitted to accept. It is understood that the addition of these EWC codes will not introduce any additional storage and handling requirements compared to those already implemented at the WTS.

- 02 01 09 – agrochemical waste other than those mentioned in 02 01 08;
- 16 01 19 – plastic; and
- 19 12 12 – other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11.

The following EWC codes will allow for the acceptance of gases in pressure containers:

- 16 05 04* – gases in pressure containers (including halons) containing hazardous substances; and
- 16 05 05 – gases in pressure containers other than those mentioned in 16 05 04.

The gases are defined as hazardous due to their potentially flammable nature (i.e. they are categorised under hazard code HP 3-B, highly flammable, in accordance with the Waste Framework Directive (WFD)). The EA guidance note ‘*Guidance for the storage and treatment of aerosol canisters and similar packaged wastes*’ provides guidance for the storage and transfer of pressurised gases at regulated facilities, such as the WTS. Upon acceptance of any pressurised gases at the WTS, these wastes will be segregated and stored safely prior to transfer off-site to an appropriate facility for treatment. Treatment of these wastes will not be undertaken at the WTS itself. Robust waste acceptance procedures will be in place to ensure that only gas wastes which are permitted under the EWC codes above are accepted at the WTS. Any wastes identified as ‘*unacceptable*’ will be immediately rejected, or quarantined prior to transfer off-site/returned to the waste producer. Robust accident management procedures are already in place at the WTS to minimise the risk of environmental harm or harm to human health as a result of accidents – further detail is presented within Appendix B. These systems will be reviewed/ revised to ensure that suitable controls are in place to minimise the risk of environmental impacts associated with the receipt, storage and handling of the additional EWC codes.

The additional Chapter 18 EWC codes provided in Table 7 relate to clinical wastes from human or animal healthcare/research (e.g. from hospitals and veterinary practices). Any wastes which are considered to be 'infectious' will be received at the site in appropriate containment (e.g. sealed packages or containers). These wastes are considered hazardous due their classification under hazard code HP 9 (infectious) in accordance with the WFD. Any sharps will be handled with care. Further details on the storage and handling of clinical wastes is presented in sections 4.2 to 4.4.

The WTS is currently permitted to accept wastes from electrical and electronic equipment (WEEE) under EWC category 16 02. It is proposed to include EWC code 16 02 13* within the EP to allow for the transfer of WEEE identified as hazardous at the site. Hazardous wastes from WEEE may contain a range of hazardous substances including Persistent Organic Pollutants (POPs). The applicable hazard codes will depend on the exact types of waste received, but may include HP 14 (ecotoxic) due to the persistent nature of POPs. Wastes identified as hazardous will have appropriate storage and handling measures to minimise environmental risks from these wastes. Further detail on storage and handling of hazardous WEEE is provided within section 4.3.

A number of municipal waste types are currently accepted at the WTS. It is proposed to extend this to include for a small number of hazardous municipal waste EWC codes, listed in Table 1 below. It is understood that wastes identified as hazardous which are received at the WTS will not undergo further treatment at the Facility. However, the addition of such codes to the WTS will allow these wastes to be temporarily stored at the site prior to transfer off-site.

Hazardous municipal wastes may contain a range of hazardous substances. The applicable hazard codes will depend on the exact types of waste received. This may include HP 9 (infectious) for municipal, clinical and sanitary wastes, HP 8 (corrosive) for municipal acids and alkalines including batteries and HP 14 (ecotoxic) for municipal pesticides.

Table 1: Additional municipal waste EWC codes

EWC code	Description
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions (except 15 01)
20 01 13*	Solvents
20 01 14*	acids
20 01 15*	alkalines
20 01 17*	photochemicals
20 01 19*	pesticides
20 01 21 *	fluorescent tubes and other mercury containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 33*	batteries and accumulators included in 16 06 01, 16 06,02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components
20 01 99	Other fractions not otherwise specified; comprising separately collected fractions of municipal clinical waste (not arising from healthcare and /or related research i.e. not including natal care, diagnosis, treatment or prevention of disease) which is subject to special requirements in order to prevent infection.

EWC code	Description
	Other fractions not otherwise specified comprising only non-clinical human and animal offensive/hygiene waste (not arising from healthcare and /or related research i.e. not including natal care, diagnosis, treatment or prevention of disease) which is subject to special requirements in order to prevent infection.
20 03 99	Other municipal waste not otherwise specified - sanitary waste from schools and offices only

4.2 Waste acceptance and pre-acceptance procedures

Viridor has implemented documented waste acceptance procedures to ensure that only suitable waste is accepted and processed at the WTS. The waste acceptance procedures form part of the documented management systems for the Facility (both the ERF and WTS). The waste acceptance procedure states the action which is taken to ensure that waste crossing the weighbridge meets the requirements of the EP. Viridor will update the documented management system to include for the processing of clinical wastes.

In accordance with EA guidance EPR 5.07, waste acceptance is divided broadly into two key stages:

- 'Stage 1' procedures undertaken prior to delivery of the waste at the site (waste pre-acceptance);
- 'Stage 2' procedures undertaken on delivery of the waste to the site.

The 'waste tracking system' described below will be in accordance with the requirements of EPR5.07 and will enable information to be recorded that is generated during pre-acceptance, acceptance, processing or removal off-site of the waste. Waste acceptance and pre-acceptance procedures will be updated to include for clinical and hazardous wastes, and will be in accordance with the BAT requirements of EPR5.06.

A more detailed summary of the waste acceptance protocol in place at the site is presented within Appendix E.

4.2.1 Waste pre-acceptance procedures

Inspections are undertaken of wastes prior to deposit/storage within the WTS building. Waste deliveries will be accompanied by a waste delivery/transfer note or similar, which will contain the following information:

- date and time of receipt of waste;
- information on the delivery vehicle/driver and carrier;
- type and quantity of waste;
- characteristic of the waste (written description) including any hazards;
- the appropriate EWC code(s);
- producer identity (or collector identity for MSW); and
- the method of containment of the waste.

The waste type and correct customer identification number (CIN) will be confirmed upon arrival of the waste, to confirm it meets the specifications required by the EP. Sampling of clinical waste will not be undertaken due to the potentially infectious nature of the waste.

For wastes not normally accepted at the WTS, waste enquiry forms will be completed by the waste producer/carrier, to enable Viridor to ensure that waste which is received by the WTS is acceptable under the requirements of the EP. The waste enquiry forms will include the following details and will be assessed by a suitably qualified person:

- customer and producer contact details;
- waste description, including EWC codes and chemical composition;
- details of the process producing the waste, including variability;
- method of transport/delivery;
- physical state of the waste;
- waste quantity; and
- hazards associated with the waste.

Regular audits will be undertaken of waste suppliers to ensure that only waste under the agreed specifications is delivered to the WTS. This will include more detailed checks of the waste types produced and will ensure a representative analysis of the waste produced. It is acknowledged that audit data must be obtained and assessed prior to the delivery of clinical waste from the waste producer/carrier to the site. Audits of producers/carriers will then be undertaken on a regular basis. A suitably trained employee at the WTS will assess the results of the audit, with audit records kept for a minimum of 2 years at the site.

Clinical wastes will be sorted and bagged/contained at source prior to transfer to the WTS. Waste producers/carriers will segregate and package the waste in accordance with the requirements of UK Government Guidance HTM 07 01 ('Safe management of healthcare waste'). Any updates to legislation and guidance will be reviewed and agreed with the waste producer/carrier.

4.2.2 Waste acceptance procedures

Upon acceptance at the WTS, the waste deliveries are weighed using a weighbridge, which allows Viridor to keep track of the quantities of waste transferred to the WTS and ensure this is in accordance with all of the requirements of the EP. In addition, the Waste Transfer Note or identification note which accompanies the waste will confirm the quantity to be processed.

In the unlikely event that the ERF is in a state of unplanned shutdown or cannot process waste for any other reason, waste deliveries will be rejected/cancelled in advance, and will not be accepted at the WTS.

Suitably qualified staff will monitor waste deliveries, in accordance with the BAT requirements of EPR5.06. Clinical and hazardous wastes will be visually inspected to ensure there are no compromises to the integrity of the packaging. Manual handling will be minimised where possible when undertaking waste acceptance checks.

Paperwork checks will be undertaken on every delivery to confirm that the consignment note is correct and in accordance with the delivery vehicle registration number, seal tag numbers, place of origin, EWC code, etc. This will ensure that only the waste types listed within the EP are accepted. The relevant hazardous characteristics of the waste will also be defined in the paperwork. The clinical and hazardous wastes accepted at the WTS will be suitably packaged and labelled to state the contents and types of waste contained within.

Clinical waste will be delivered to the WTS in suitable leak-proof containment or packaging. Containers will be designed to retain litter/fluids when lids or doors are open, and will not be overloaded or otherwise stored in a manner which would result in a failure of packaging. As the WTS will primarily accept clinical wastes for onward transfer, it is not anticipated that additional

handling will be required once the waste has been unloaded from the delivery vehicle into the relevant storage area. Sharps would be stored within rigid packaging in an upright, stable and controlled manner to prevent and minimise the potential for spillages to occur.

Manual handling of clinical waste will be minimised where possible. Appropriate Personal Protective Equipment (PPE) will be worn by personnel where handling of clinical waste is required (for example in the unlikely event of a spillage or accident).

Clinical or hazardous wastes which arrive at the WTS that are not in accordance with the required specifications or requirements of the EP will not be accepted. The 'unacceptable' waste delivery will be rejected and potentially quarantined prior to transfer off-site – refer to section 4.2.3.

Upon acceptance at the WTS, the waste carrier will be directed to tip the waste in the appropriate waste reception bay depending on waste type. Clinical and hazardous wastes will be segregated from all other incoming wastes – refer to section 4.3.

Once a delivery of clinical or hazardous waste has been completed, the consignment note will be signed by the carrier and the supervising staff member, ensuring to record the time and date of delivery, quantity delivered, EWC code and vehicle registration.

Upon exiting the site, delivery vehicles will be supervised and exit via the appropriate weighbridge, following the site vehicle exit procedures.

It is understood that the waste acceptance and pre-acceptance procedures described above are in line with the requirements of EPR5.07, and paragraph 3 of the Industrial Emissions Directive. Records of acceptance and pre-acceptance checks will be kept at the site for the minimum periods as described in EPR5.07 for different providers. In addition, prior to accepting any clinical waste at the WTS, the requirements of UK Government guidance HTM-07-01 will be incorporated into the waste acceptance and pre-acceptance procedures for the WTS.

4.2.3 Unacceptable wastes

Wastes identified as 'unacceptable' will be immediately rejected, or quarantined prior to transfer off-site/returned to the waste producer. A dedicated quarantine area is available for the segregation of unacceptable wastes. The quarantine area has an impermeable surface, and any 'unacceptable' waste will be kept separate from other wastes and in suitable containment where appropriate.

Clinical or hazardous wastes which arrive at the WTS and are deemed to be 'unacceptable' will not be removed from the delivery vehicle, should this be identified before the waste has been deposited.

If technically feasible, non-permitted material will be removed to a suitably licensed facility within 7 days, unless otherwise agreed in writing with the EA. The non-permitted waste will be removed in accordance with Duty of Care requirements utilising properly completed transfer notes and registered waste carriers. Any hazardous wastes will be removed following the requirements of the current hazardous waste legislation.

A record will be kept of any unacceptable or non-conforming waste, enabling Viridor to contact the supplier to prevent recurrence. Clear and unambiguous criteria will be applied for the rejection of wastes together with a written procedure for tracking and reporting non-conformance, including notifying the waste supplier.

4.3 Storage, handling and containment measures

Clinical and hazardous wastes will be segregated from other waste types and stored within dedicated storage bays. Clinical wastes will be stored within a dedicated skip to provide further containment of the wastes. It is understood that this segregation of clinical waste is in accordance with the requirements of EA guidance – clinical waste will not be permitted to be stored loose.

Hazardous waste will not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by an activity listed within Schedule 1, Table S1.1 of the EP. Storage areas will be clearly marked and signed with regards the quantity and hazardous characteristics of the wastes stored therein.

It is anticipated that up to approximately 100 tonnes of hazardous clinical waste and 5,000 tonnes of WEEE would be received each year. The primary purpose of accepting clinical and hazardous wastes at the WTS would be for temporary storage and subsequent onward transfer – clinical and hazardous wastes will not undergo treatment at either the WTS.

The WTS operates primarily on a ‘first in, first out’ policy. Therefore, waste is not normally stored within the building for longer than 24 hours, and the incoming waste pile is completely cleared on a daily basis. Frequent visual checks are also undertaken of waste storage areas, to ensure that any incompatible wastes are easily identified and removed. Clinical wastes will be visually inspected to ensure no compromises to the integrity of the packaging. Manual handling will be minimised where possible.

The wastes will be stored on an impermeable surface and under cover (i.e. within the main building) with drainage contained and directed to the decantation (process effluent) pit. Clinical wastes will be stored within a dedicated skip within the waste transfer building. A good standard of housekeeping will be maintained, with surfaces cleaned regularly. The surfaces of clinical waste storage areas will be of a suitable type to allow effective disinfection with a broad spectrum agent if required (e.g. following a spillage).

The integrity of clinical waste packaging will be protected at all times (i.e. clinical waste will never be thrown, walked upon, or handled in any other manner that may result in a failure of packaging integrity). Any offensive/hygiene waste will be handled in accordance with the relevant guidance on ‘Managing offensive/hygiene waste safely’ (WASTE22) issued by the Health and Safety Executive (HSE).

Clinical waste dispatched from the site will be contained in accordance with (and loaded onto vehicles that meet) the appropriate requirements for the carriage of dangerous goods. Hazardous wastes will not be mixed with other categories of hazardous or non-hazardous wastes. Vehicles will be loaded in a manner which prevents leakage or contamination from one waste type to another. Documented procedures will be in place to check outgoing vehicle loads and confirm that the aforementioned requirements have been met.

The site inventory will track and link incoming consignments of clinical waste to outgoing waste loads and documentation. Outgoing waste description and classification will be the same as that for the incoming waste, unless the incoming waste description is incorrect or otherwise incomplete. Should the incoming waste description be deemed incorrect/incomplete, this shall be addressed and documented with the original waste producer during waste acceptance procedures.

Further details on storage, handling and containment measures for clinical and hazardous wastes are presented within the Environmental Risk Assessment (Appendix B).

4.4 Transfer of clinical and hazardous wastes off-site

Where clinical and hazardous wastes are transferred off-site to a relevant waste operation site, Viridor will ensure that the Operator of that site is provided with the following information, prior to the receipt of the waste:

1. the composition of the waste;
2. the handling requirements of the waste;
3. the hazardous properties associated with the waste, if applicable; and
4. the waste code(s) of the waste.

When wastes are required to be loaded back onto delivery vehicles for transfer off-site, in accordance with EPR5.07, the following measures will be adhered implemented:

- The waste packaging and integrity will be confirmed and will be in accordance with the appropriate requirements for the carriage of dangerous goods.
- The clinical will not be mixed with other categories of waste, and vehicles will be loaded in a manner that prevents leakage or contamination of the waste.
- The site inventory will enable the tracking/linking of specific incoming consignments of waste to specific outgoing waste loads and documentation.

Further details on handling and containment measures for clinical and hazardous wastes are presented within the Environmental Risk Assessment (Appendix B).

5 Pre-operational and improvement conditions – ERF

Table 2 below provides a review of the improvement conditions for the ERF, to enable the EA to discharge conditions where appropriate. It is understood that all pre-operational conditions were discharged prior to the commencement of commissioning.

Table 2: Review of pre-operational and improvement conditions

Ref	Requirement	Date	Comment
ERF (GP3305LN)			
IC1	Submit a written report to the EA on the implementation of its Environmental Management System and the progress made in the certification of the system.	Within 15 months of the completion of commissioning.	The report was submitted to the EA on 28/09/2020. The condition was discharged on 20/07/2021.
IC2	Submit a written proposal to the EA to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1& A2, identifying the fractions within the PM10 and PM2.5 ranges. Once the tests have been carried out in accordance with the timetable agreed with the EA, a report on the results must be submitted to the EA.	Within 6 months of the completion of commissioning.	The relevant information was submitted to the EA on 02/09/2019 and approved by the EA on 01/11/2019. The full report on the results was submitted to the EA on 06/02/2020. Assuming this is acceptable to the EA, it is proposed to discharge IC2 and remove this condition from the EP.
IC3	Submit a written report to the EA on the commissioning of the installation.	Within 4 months of the completion of commissioning.	The report was submitted to the EA on 06/11/2020. The condition was discharged by the EA on 04/10/2021.
IC4	Submit results to the EA on verification checks for residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions.		The condition was discharged by the EA on 25/06/2021.
IC5	Submit a report to the EA on the optimisation and performance of the Selective Non-Catalytic Reduction (SNCR) system and combustion techniques to minimise NO _x emissions alongside N ₂ O and NH ₃ emissions. The report must include an assessment on the level of emissions that can be		The report was submitted to the EA on 06/11/2020. Assuming this is acceptable to the EA, it is proposed to discharge IC5 and remove this condition from the EP.

Ref	Requirement	Date	Comment
	achieved under optimum conditions. The report must also provide details on the optimisation for the control of acid gases and dioxins, including dosing rates.		
IC6	Submit a report to the EA which confirms the results of calibration and verification testing for the Continuous Emissions Monitoring System (CEMS), ensuring that the CEMS complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration on report to be submitted to the EA within 3 months of completion of commissioning. Full summary evidence compliance report to be submitted within 18 months of completion of commissioning.	The initial calibration report was submitted to the EA on 26/09/2019. Assuming this is acceptable to the EA, it is proposed to partially discharge IC6.
IC7	Carry out monitoring of NO ₂ and NO to determine the primary proportion of NO ₂ in the emissions to air and to monitor the performance of SNCR on the flue gas. Emissions monitoring data must be collected over a representative period of operation to be agreed in writing with the EA. A written report on the monitoring must then be submitted to the EA.	15 months from commencement of operations	The report was submitted to the EA on 20/10/2020. Assuming this is acceptable to the EA, it is proposed to discharge IC7 and remove this condition from the EP.
IC8	Carry out an assessment of the impact of manganese, lead and nickel emissions to air, and submit a report on the assessment to the EA. Emissions monitoring data obtained from the first year of operation must be compared with the assessment. An assessment must then be made of the impact of each metal against the relevant EQS/EAL. In the event that the assessment shows that any levels can be exceeded, the assessment must include proposals for future investigative work.		The assessment was submitted to the EA on 05/10/2020. Assuming this is acceptable to the EA, it is proposed to discharge IC8 and remove this condition from the EP.

Ref	Requirement	Date	Comment
IC9	Provide notification to the EA of the reprogramming of the CEMS to the 10-minute average ELV for CO.	Within 2 weeks of completion of reprogramming	Notification was provided to the EA on 03/02/2020 with the condition discharged by the EA on 22/05/2020.

6 Consolidation of EPs

Viridor currently hold separate EPs for the ERF (Ref: GP3305LN) and the WTS (Ref: JB3902FZ). In applying for this variation application, it is proposed to consolidate EP for the WTS into the EP for the ERF.

6.1 Activities

The activities currently listed within the WTS EP, including the additional activity associated with the processing of hazardous waste, are set out within Table 3 below.

Table 3: Activities associated with the WTS

Activity listed in Schedule 1 of the EP regulations	Description of specified activity and WFD Annex I and II operations	Limits of activities
-	<p>D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)</p> <p>R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)</p> <p>D14: Repackaging prior to submission to any of the operations numbered D1 to 13</p> <p>D9: Physico-chemical treatment not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12</p> <p>R3: Recycling/reclamation of organic substances which are not used as solvents</p> <p>R4: Recycling/reclamation of metals and metal compounds</p> <p>R5: Recycling/reclamation of other inorganic materials</p>	<p>The maximum quantity of asbestos waste received at the site shall not exceed 10 tonnes per day.</p> <p>The maximum quantity of asbestos waste stored at the site shall not exceed 10 tonnes.</p> <p>Treatment consisting only of manual sorting, separation, screening, baling, shredding, crushing or compaction of non-hazardous waste into different components for disposal, (no more than 50 tonnes per day) or recovery.</p> <p>There shall be no treatment of asbestos waste.</p> <p>No more than a total of 50 tonnes of intact and shredded waste vehicle tyres (waste codes 16 01 03 and 19 12 04) shall be stored at the site.</p>
Section 5.6 A(1)(a) – Temporary storage of	Storage of hazardous waste.	Waste types to be as specified in Schedule 2 of the EP.

Activity listed in Schedule 1 of the EP regulations	Description of specified activity and WFD Annex I and II operations	Limits of activities
hazardous waste in a facility with a total capacity exceeding 50 tonnes.	<p>D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)</p> <p>R13: Storage of hazardous waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced)</p>	No more than 15 tonnes of hazardous waste to be stored on site at any one time (10 tonnes of WEEE and 5 tonnes of clinical wastes).

6.2 Operating techniques

Apart from the addition of the handling and containment measures for clinical and hazardous wastes (described in section 4), the Operating Techniques associated with the WTS will not change.

The maximum amounts of hazardous wastes that will be stored on site at any one time will not exceed 15 tonnes. A diagram has been included within Appendix A which shows the storage locations of hazardous waste.

7 Environmental impacts

Due to the extent of the proposed changes to the EP, as proposed within this application, there will be a number of different environmental impacts associated with the changes. The extent of these environmental impacts have been considered in sections 7.1 to 7.7.

7.1 Air Quality

7.1.1 ERF

As detailed in section 2, due to the proposed changes to the combustion control concept, the ERF is capable of processing additional waste. An updated Air Quality Assessment (AQA) and Human Health Risk Assessment (HHRA) associated with the proposed increase in capacity have been undertaken, refer to Appendix C. The AQA includes for an assessment of emissions during abnormal operation.

As concluded in the AQA, the impact of the change in the maximum continuous rating for the installation would be *“not significant with respect to human health or habitat sites”*.

Furthermore, the HHRA concludes that *“for the maximally exposed individual, exposure to dioxins, furans and dioxin-like PCBs is not significant”*.

7.1.2 WTS

Emissions resulting from the operation of the shredder will be minimal; however, an assessment of the air quality impacts from the operation of the shredder has been undertaken and is presented within Appendix C. The assessment concludes that the impact on local air quality as a result of the operation of the shredder will be negligible.

7.2 Raw material consumption

7.2.1 ERF

The proposed increase in the capacity of the ERF will result in the consumption of additional quantities of the raw materials currently consumed during the operation of the ERF, as presented in Table 4. The ‘new’ design capacity of the ERF has been used within this calculation, which has been derived from operating at 110% of the previous design point, where the NCV of the waste is 9.8 MJ/kg, for 8,760 hours each year. The ‘existing’ design capacity of the ERF is based on operation at 100% thermal capacity, an NCV of 9.8 MJ/kg, for 7,800 hours each year, in accordance with the original permit application.

The use of the design point, rather than the maximum possible hourly throughput (i.e. top right hand corner of the firing diagram), is a similar approach as per that undertaken in the Greenhouse Gas Assessment (refer to Appendix C), to allow an appropriate comparison to be made between the ‘existing’ design and the ‘proposed’ design. It should be noted that a reduced availability (i.e. not 8,760 hours per annum) was assumed for the Greenhouse Gas Assessment, to allow emissions during start-up and shutdown to be calculated.

The new and existing design points on the firing diagram are demonstrated below:

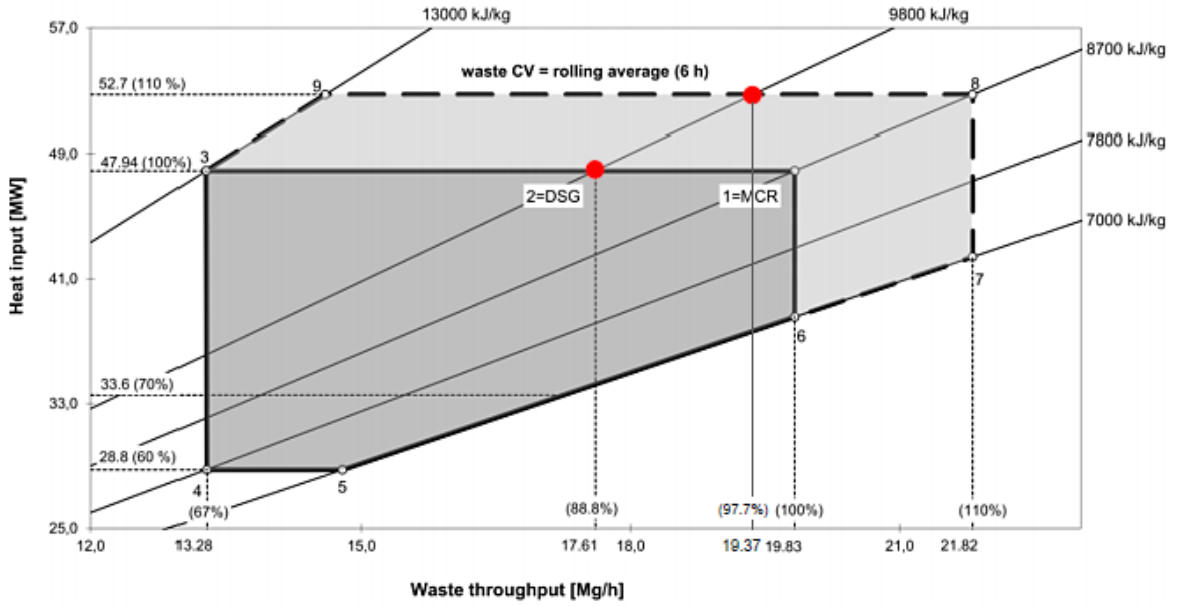


Figure 2: Firing diagram - design points

Taking the above into consideration, the ‘new’ design capacity can be calculated as follows:

$$\begin{aligned}
 \text{‘New’ design capacity} &= \text{‘New’ design throughput (tph)} \times \text{Operational period} \\
 &= 19.37 \text{ tonnes per hour} \times 8,760 \text{ hours} \\
 &= 169,681 \text{ tonnes per annum per line} \\
 &= 339,362 \text{ tonnes per annum}
 \end{aligned}$$

Table 4: Estimated change in raw material consumption – ERF

Raw material	Unit	Existing raw material consumption – 275,000 tpa ^[1] (17.61 tph per line at 7,800 hours availability)	New raw material consumption – 339,362 tpa ^[2] (19.37 tph per line at 8,760 hours availability)
Lime	tpa	3,500	4,300
Carbon	tpa	100	120
Urea	tpa	700	860
Fuel oil ^{[3][4]} (auxiliary firing)	tpa	2,000	2,000

Notes:

- Derived from original EP application.
- Based on new ‘design’ capacity (not maximum capacity).
- Fuel oil is used as a start-up (and shutdown fuel). Due to the proposed reduction in the frequency of maintenance outages, the actual number of start-ups and shutdowns will reduce. However, it is conservatively assumed that fuel oil consumption will remain the same.
- Viridor may also use ‘Furnaceflame’, which is a specialist heating gasoil which meets the specification for BS2869 Class D (heating gasoil specification), in place of standard gasoil.

Raw material	Unit	Existing raw material consumption – 275,000 tpa ^[1] (17.61 tph per line at 7,800 hours availability)	New raw material consumption – 339,362 tpa ^[2] (19.37 tph per line at 8,760 hours availability)
Permit condition 2.3.7 requires that emissions from fuels which feed the burners are no higher than those for gasoil. As Furnaceflame is a gasoil which meets the required British standard, a permit variation is not required. This information is therefore included for clarity only. A datasheet for Furnaceflame is included within Appendix F for reference.			

The estimated raw material consumption has been scaled from the raw material consumption presented in the original EP application to reflect the proposed increase in processing capacity. It should be noted that the proposed increase in plant capacity will not result in any changes to the arrangements for the storage and handling of raw materials or any additional types of raw materials to be consumed at the ERF.

7.3 Residues generation

The proposed increase in ERF capacity will result in the generation of additional residues, as presented in Table 5:

Table 5: Estimated residue generation – ERF

Residue	Units	Residue generation – 275,000 tpa ^[1]	Estimated residue generation – 339,362 tpa ^[2]
Incinerator Bottom Ash (IBA)	tpa	69,000	85,000
Air Pollution Control residues (APCr)	tpa	9,100	11,200
<ol style="list-style-type: none"> Derived from original EP application. Based on new 'design' capacity (not maximum capacity). 			

The estimated residues generation has been scaled from the residues generation presented in the original EP application to reflect proposed increase in capacity. It should be noted that the proposed increase in plant capacity will not result in any changes to the arrangements for the storage and handling of residues generated by the ERF.

It is not anticipated that there will be any changes to the quantities of residues generated at the WTS as a result of the proposed changes. The destinations for waste which is processed at the WTS will be in line with the waste hierarchy where possible. It is acknowledged that for clinical and hazardous wastes, this may involve disposal, however alternative treatment or recovery options will be sought where technically/economically practical.

7.4 Energy efficiency

7.4.1 ERF

As stated within section 2, the proposed changes will result in an increase in gross power generation (at the design point) from 26.1 MWe to 29.5 MWe. The 'design' capacity will increase to 19.37

tonnes per line per hour, as described within section 7.2. The ERF is assumed to operate at 100% availability (i.e. 8,760 hours) for the purpose of calculating annual design capacity, due to shutdowns being reduced in frequency to once every 18 months. The nominal annual capacity will therefore be approximately 339,362 tonnes per annum – refer to section 7.2.1. Parasitic load is expected to reduce from around 3.9 MWe (assumed within the original EP application) to around 3 MWe.

The proposed design of the ERF has been considered against the relevant energy efficiency requirements of the waste incineration sector guidance (EPR5.01) and the Waste Incineration BREF (referred to as the WI BREF). As presented in Table 3, the ERF compares favourably with the relevant benchmarks at the design point.

Table 6: ERF design parameters comparison table

Parameter	Unit	The ERF	Benchmark	Source
Net power generation (339,362 tpa at 8,760 hours)	MWh/t waste	0.684	0.6-0.9	BREF
Internal power consumption (339,362 tpa at 8,760 hours)	MWh/t waste	0.0774	0.06-0.19	BREF
Power generation (assumed gross) for 100,000 tpa of waste	MWe	8.7	5-9	EPR5.01

7.5 Fire prevention plan

The proposed increase in capacity of the ERF is due to an increase in both the operational availability and the thermal load performance of the ERF. Through the implementation of this variation, there will not be any changes to the quantity or arrangements for the storage of waste within the ERF. Furthermore, it is understood that:

- there will be no increase in the potential risk of fire at the ERF including the volumes of wastes which will be held at the ERF in the bunker; and
- there will be no changes to the proposed management techniques to prevent or mitigate fire associated with this variation.

A Fire Prevention Plan is already in place for the WTS and is incorporated into the current EP for the WTS. The proposed changes will not result in an overall increase in the amount of waste processed or stored at the WTS. The additional waste types proposed to be accepted at the WTS are not considered to present any additional fire risk compared to wastes already accepted at the WTS.

The WTS is equipped with appropriate fire detection and suppression measures to enable a safe and timely response in the event of a fire at the site. Taking the above into consideration, it is considered that updates to the existing Fire Prevention Plan for the WTS are not required in support of this variation application. The requirements of the existing Fire Prevention Plan for the WTS should be incorporated into the consolidated EP accordingly.

7.6 Noise

The proposed changes will not result in any changes to the noise impacts as a result of operations at the ERF or WTS.

Taking the above into consideration, it is not considered necessary to provide a 'new' or 'revised' noise assessment associated with the proposed changes to the EP.

7.7 Odour

It is not considered that the proposed changes will result in an increased risk of odour at the site. Further details on odour management for the proposed changes are presented within the Environmental Risk Assessment in Appendix B.

8 Management systems

Viridor currently operates the ERF and the WTS in accordance with robust documented management systems. As identified within this application, where appropriate, the documented procedures will be updated to incorporate the changes proposed. This may include, but not be limited to, the following:

- Procedures for the delivery, storage, handling and processing of clinical and hazardous wastes at the WTS, including identification of specific risks and response procedures for accidents e.g. spillages.

Appendices

A Plans and drawings

B Environmental Risk Assessment

C Air Quality Assessments

D EWC codes

Table 7: EWC codes to be incorporated for the WTS

EWC code	Description
02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING
02 01	Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 03	Plant-tissue waste
02 01 04	Waste plastics (except packaging)
02 01 07	Wastes from forestry
02 01 09	Agrochemical waste other than those mentioned in 02 01 08*
02 01 10	Waste metal
02 02	Wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 03	Materials unsuitable for consumption or processing
02 03	Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 04	Materials unsuitable for consumption or processing
02 05	Wastes from the dairy products industry
02 05 01	Materials unsuitable for consumption or processing
02 06	Wastes from the baking and confectionery industry
02 06 01	Materials unsuitable for consumption or processing
02 06 02	Wastes from preserving agents
02 07	Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	Wastes from spirits distillation
02 07 04	Materials unsuitable for consumption or processing
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD
03 01	Wastes from wood processing and the production of panels and furniture
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	Wastes from pulp, paper and cardboard production and processing
03 03 01	Waste bark and wood
03 03 07	Mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	Wastes from sorting of paper and cardboard destined for recycling

EWC code	Description
03 03 10	Fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
04	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES
04 01	Wastes from the leather and fur industry
04 01 08	Waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	Wastes from dressing and finishing
04 02	Wastes from the textile industry
04 02 09	Wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	Organic matter from natural products (eg. grease, wax)
04 02 21	Wastes from unprocessed textile fibres
04 02 22	Wastes from processed textile fibres
07	WASTES FROM ORGANIC CHEMICAL PROCESSES
07 02	Wastes from the MFSU of plastics, synthetic rubber and man-made fibres
07 02 13	Waste plastic
09	WASTES FROM THE PHOTOGRAPHIC INDUSTRY
09 01	Wastes from the photographic industry
09 01 07	Photographic film and paper containing silver or silver compounds
09 01 08	Photographic film and paper free of silver or silver compounds
09 01 10	Single-use cameras without batteries
09 01 12	Single-use cameras containing batteries other than those mentioned in 09 01 11
10	WASTES FROM THERMAL PROCESSES
10 01	Wastes from power stations and other combustion plants (except 19)
10 01 01	Bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	Wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 05	Plastics shavings and turnings
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01	Packaging (including separately collected municipal packaging waste)
15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 03	Wooden packaging
15 01 04	Metallic packaging
15 01 05	Composite packaging
15 01 06	Mixed packaging
15 01 07	Glass packaging

EWC code	Description
15 01 09	Textile packaging
15 02	Absorbents, filter materials, wiping cloths and protective clothing
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01	End-of-life vehicles from different means of transport [including off-road machinery] and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 03	End-of-life-tyres
16 01 19	Plastic
16 02	Wastes from electrical and electronic equipment
16 02 13*	Discarded equipment containing hazardous components (excluding capacitors containing PCBs/PCTs), other than those mentioned in 16 02 09 to 16 02 12
16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15
16 03	Off-specification batches and unused products
16 03 04	Inorganic wastes other than those mentioned in 16 03 03
16 03 06	Organic wastes other than those mentioned in 16 03 05
16 05	Gases in pressure containers
16 05 04*	gases in pressure containers (including halons) containing hazardous substances
16 05 05	gases in pressure containers other than those mentioned in 16 05 04
16 06	Batteries and accumulators
16 06 04	Alkaline batteries (except 16 06 03)
16 06 05	Other batteries and accumulators
16 11	Waste linings and refractories
16 11 02	Carbon-based linings and refractories from metallurgical processes other than those mentioned in 16 11 01
16 11 04	Other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	Linings and refractories from non-metallurgical processes other than those mentioned in 16 11 05
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01	Concrete, bricks, tiles and ceramics
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

EWC code	Description
17 02	Wood, glass and plastic
17 02 01	Wood
17 02 02	Glass
17 02 03	Plastic
17 03	Bituminous mixtures, coal tar and tarred products
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01
17 04	Metals (including their alloys)
17 04 01	Copper, bronze, brass
17 04 02	Aluminium
17 04 03	Lead
17 04 04	Zinc
17 04 05	Iron and steel
17 04 06	Tin
17 04 07	Mixed metals
17 04 11	Cables other than those mentioned in 17 04 10
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 06	Insulation materials and asbestos-containing construction materials
17 06 01*	Insulation materials containing asbestos
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05*	Construction materials containing asbestos
17 08	Gypsum-based construction material
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01
17 09	Other construction and demolition wastes
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
18	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)
18 01	wastes from natal care, diagnosis, treatment or prevention of disease in humans
18 01 01	sharps (except 18 01 03)
18 01 03*	wastes whose collection and disposal is subject to special requirements in order to prevent infection.

EWC code	Description
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
18 01 09	medicines other than those mentioned in 18 01 08
18 02	wastes from research, diagnosis, treatment or prevention of disease involving animals
18 02 02*	wastes whose collection and disposal is subject to special requirements in order to prevent infection.
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE
19 01	Wastes from incineration or pyrolysis of waste
19 01 02	Ferrous materials removed from bottom ash
19 01 12	Bottom ash and slag other than those mentioned in 19 01 11
19 02	Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 02 10	Combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	stabilised/solidified wastes
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 05	Wastes from aerobic treatment of solid wastes
19 05 01	Non-composted fraction of municipal and similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off-specification compost
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	Paper and cardboard
19 12 02	Ferrous metal
19 12 03	Non-ferrous metal
19 12 04	Plastic and rubber
19 12 05	Glass
19 12 07	Wood other than that mentioned in 19 12 06
19 12 08	Textiles
19 12 09	Minerals (for example sand, stones)
19 12 10	Combustible waste (refuse derived fuel) & HWRC waste
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11*

EWC code	Description
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions (except 15 01)
20 01 01	Paper and cardboard
20 01 02	Glass
20 01 08	Biodegradable kitchen and canteen waste
20 01 10	Clothes
20 01 11	Textiles
20 01 13*	Solvents
20 01 14*	acids
20 01 15*	alkalines
20 01 17*	photochemicals
20 01 19*	pesticides
20 01 21 *	fluorescent tubes and other mercury containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 33*	batteries and accumulators included in 16 06 01, 16 06,02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
20 01 34	Batteries and accumulators other than those mentioned in 20 01 33
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	Wood other than that mentioned in.20 01.37
20 01 39	Plastics
20 01 40	Metals
20 01 41	Wastes from chimney sweeping
20 01 99	Other fractions not otherwise specified; comprising separately collected fractions of municipal clinical waste (not arising from healthcare and /or related research i.e. not including natal care, diagnosis, treatment or prevention of disease) which is subject to special requirements in order to prevent infection. Other fractions not otherwise specified comprising only non-clinical human and animal offensive/hygiene waste (not arising from healthcare and /or related research i.e. not including natal care, diagnosis, treatment or prevention of disease) which is subject to special requirements in order to prevent infection.
20 02	Garden and park wastes (including cemetery waste)
20 02 01	Biodegradable waste
20 02 02	Soil and stones

EWC code	Description
20 03	Other municipal wastes
20 03 01	Mixed municipal waste
20 03 02	Waste from markets
20 03 03	Street-cleaning residues
20 03 07	Bulky waste
20 03 99	Other municipal waste not otherwise specified - sanitary waste from schools and offices only
<i>Note: EWC codes in red text are the additional codes proposed within this application</i>	

E Waste Acceptance Protocol

F Furnaceflame Datasheet

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