



Fornax Permit Application EPR/QP3720LP/A001 Schedule 5 Response

**Fornax (North East) Ltd
Station Place
Aycliffe Business Park
Newton Aycliffe
DL5 6AA**



Basis of report

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Issue and Revision Record

Revision	Date	Description of Changes
0	January 2026	Issue of document to address Schedule 5 for Newton Aycliffe Fornax Facility Updated site address as now issued by Post Office: Fornax (North East) Ltd Station Place Aycliffe Business Park Newton Aycliffe DL5 6AA



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Introduction

This document has been written to provide responses to the Schedule 5 Notice for Permit application reference EPR/QP3720LP/A001 issued on 12/11/2025.

1.0 Emissions to surface water and sewer

Discharge Consent

A discharge consent application has been submitted to Northumbria Water. It is confirmed that a discharge consent will be obtained from Northumbria Water Ltd prior to commencement – application submitted 24/11/25. Northumbria Water have undertaken a site visit following on from receipt of the application and we are awaiting the response.

The wastewater discharges to foul sewer

Table 1: Wastewater sources pass through the underground holding tank prior to discharge to foul sewer:

Source	Volume
Bin Wash	4.42 m ³ per Day
Jet wash	Occasional use
Drain from FLT charging room	Nil
Emergency Showers and lab sink	2.5m ³ per week (weekly test)

Table 2: Wastewater sources discharge to foul sewer but not through the underground holding tank:

Source	Volume
Fire sprinkler pump system drainage	No discharge in normal operation
Boiler blow down	57m ³ twice a year.
Cooler drain	Not known
Drainage from site waste bins compound	Dependant on rainfall

Justification that the proposed foul sewer holding tank is adequately sized.

Table 3: Wastewater sources pass through the underground holding tank prior to discharge to foul sewer:

Source	Volume
Bin Wash	4.42 m ³ per Day
Jet wash	Occasional use
Drain from FLT charging room	Nil

The foul sewer holding tank is 16.0m³. In normal operation, effluent will pass through the tank rather than being contained. In circumstances where the discharge to foul sewer must be suspended, the tank will give a capacity equivalent to three days of bin wash operations in which to investigate and rectify any discharge issues.



Discharge Impact Assessment to sewer

Screening tests were undertaken using Surface Water pollution risk assessment for your environmental permit guidance.¹

The facility operates bin washing within the warehouse for the purpose of washing bins that have contained bagged clinical waste before they are returned to the customer. Only clinical waste bins will be washed on site, no bins that have contained hazardous waste will be washed. The detergent used in the Bin wash is either Samson Detergent or UTEX (Please see Appendix 1 for a copy of the SDS for the detergents used) The boiler cooling water will contain saline water.

All of the components were screened in accordance with the screening tools and none of the components were listed as being a hazardous substance.

There will be **no Hazardous substance discharged to sewer** from the facility and therefore a further impact assessment was not required.

2.0 Surface Water Discharge to Demons Beck assessment

To clarify the drainage system for the site has three separate components which are kept separately

Foul Drainage – Dedicated foul water system which directs foul water to the Northumbria Water Sewer via a consent to discharge.

Hazardous Area Drainage – Containment of any runoff to a series of drainage channels and a sump to a above ground hazardous waste storage tank. It is contained for offsite disposal or destruction via incineration on site.

Surface water – Surface water from the roof area is directed into the suds system comprising of an attenuation pond. The attenuation pond will not receive contaminated surface water. Surface water from the dedicated surface drainage from uncontaminated areas of the site are directed to W1 via onsite drainage pipework.

Surface water runoff is not directly discharged into Demons Beck as the discharge point from clean surface water is into the discharge point W1 shown on the drainage plan. W1 feeds to the Demons Beck to the south of the site. Surface water drainage is described in the drainage strategy note provided in Appendix 2 of this document.

In normal operation, surface water will be uncontaminated and will consist of drainage of rainfall from impermeable surface (yard, roof). This is detailed and assessed in the drainage strategy note. Surface water runoff from the yard and all other hardstanding areas trafficked by vehicles with the exception of the car park passes through a penstock valve and oil/water separator before discharging offsite. Surface water from the carpark passes through a Class 1 Bypass Petrol Separator before discharging offsite. The final discharge offsite is controlled by a penstock valve which would be closed in the event of any emergency situation thus preventing any contamination leaving site.

In the event of a fire, fire water runoff including from the installed deluge system is contained within the yard area. This is controlled by means of a penstock valve at the northeast of the yard and a further penstock at W1

¹ <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>



where the surface drain leaves site. In this case, contaminated fire water would be removed from site by tanker to a suitable hazardous waste receiving station.

The discharge of surface water runoff from external areas to Demons Beck will be uncontaminated.

The Drawing Layout is provided on Drawing Number 005 Fornax Drainage Plan in Appendix 3.

3.0 Surface Water Attenuation Pond

The attenuation pond is designed to alleviate flood risk and is constructed in accordance with SfA and SuDs guidance (Ciria 753). **It does not form part of the site's secondary containment strategy.** The attenuation pond receives clean surface water only from the two gutters on the small roof at the west end of the main building. The area of collection of this surface water is not within any of the areas that could receive contaminated runoff such as fire water. The pond is not designed to receive or store contaminated runoff and is separate from any of the areas or systems that handle or could receive contaminated runoff. The attenuation pond is not lined but sits within a clay bed which is considered adequate for the purpose.

The FPP fire water containment plan demonstrates that the attenuation pond is not part of that system and would not be impacted using the building sprinkler system and discharge of the contents of the fire water tank within the site.

As there is no scenario where the attenuation pond would be required to receive contaminated runoff and no scenario where this could inadvertently occur, lining of the pond to protect the ground beneath the pond is deemed unnecessary.

Appendix 2 Burrows Graham Helios, Newton Aycliffe Drainage Strategy Note document outlines the drainage engineering design.

4.0 Foul Sewer Holding Tank

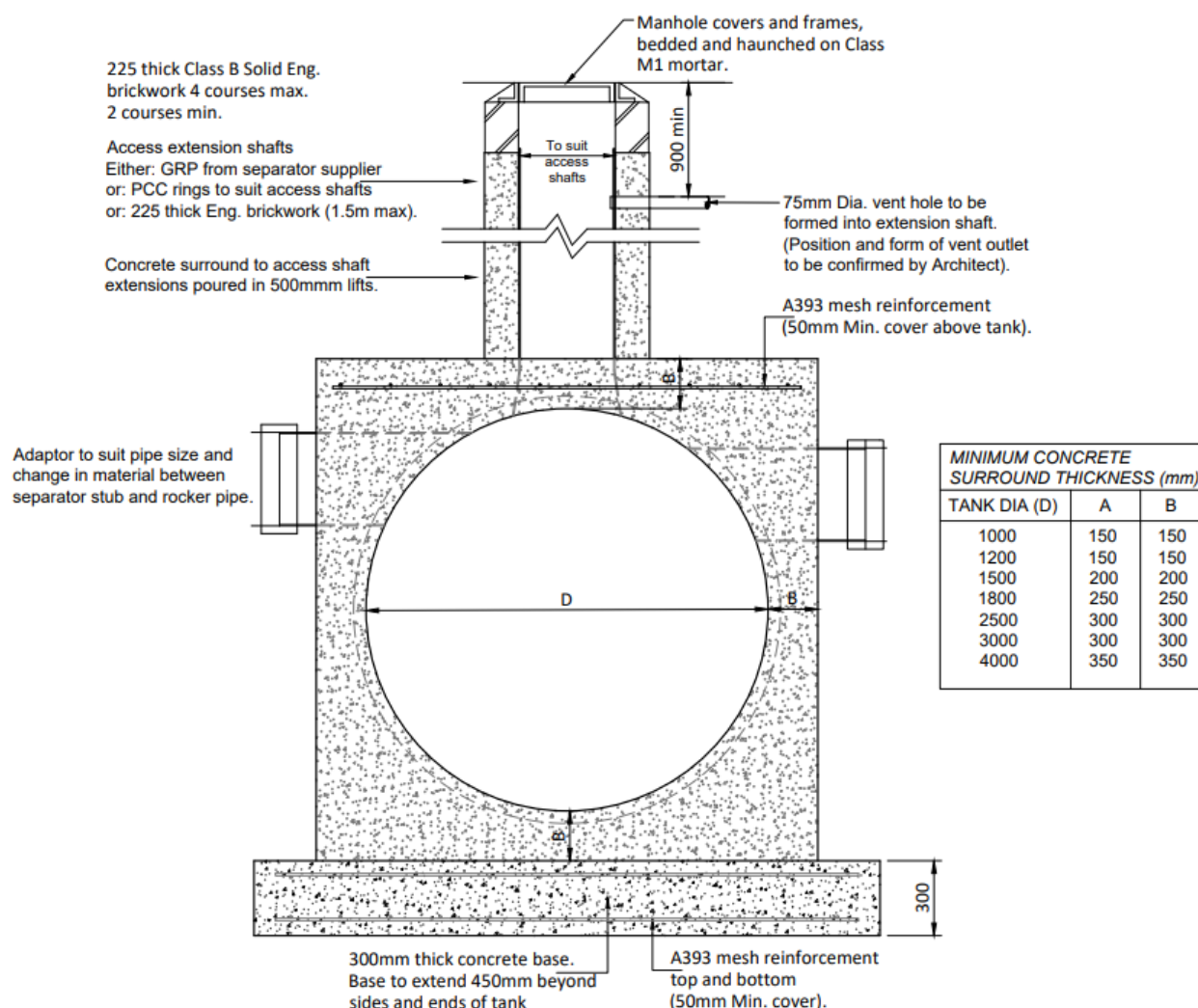
The belowground sewer holding tank has been designed using an internal tank made up of a single skinned, horizontal, cylindrical tank of 1.8m diameter and 6.59m overall length with inlet and outlet at opposite ends and two access penetrations in the top. Capacity 16,000 litres. The tank is of GRP construction and is therefore impermeable and resistant to the stored materials. Installed at the end of 2024, the tank has a manufacturer's warranty of 25 years and a design life of 50 years.

The tank was completely encased in reinforced concrete with a minimum thickness of 250mm providing secondary containment.

The tank will be subject to periodic annual inspection via visual inspection and pressure testing. During commissioning it is our intention to inspect and ensure integrity prior to implementing the annual inspection.

Extract of drawing showing tank arrangement of underground foul holding tank. Please see Appendix 4 for detail.





UNDERGROUND TANK DETAIL

(To be installed in accordance with the Manufacturers instructions)

Figure 1: Underground tank schematic

5.0 Energy Centre Drainage

The drainage plan Drawing 005 highlights all drainage in the energy centre as red. The energy centre drainage is separate to all other drainage on site and goes to the sump below the bottom ash conveyor. There is a rise of 2mm towards doors to allow flow back to the sump. From the sump it is pumped to an above ground bunded "hazardous" holding tank. The waste is either transferred from there offsite as hazardous waste or as a contingency measure it may be incinerated via the plant. The drainage system within the energy centre consists of either HDPE gullies and dual contained pipework or stainless-steel channel all with extreme corrosion and chemical resistance properties. This information is contained in the drainage plan drawing 005 These drains will be subject to regular visual inspection as part of operator daily/weekly checks. The tank has level alarms at 50%, 75% and 90% of capacity.



6.0 Above Ground Hazardous Storage Tank Containment

The above ground hazardous tank design will be in accordance with CIRIA 736. The tank benefits from a secondary containment bund Please see the below schematic.

Concrete Bund at 110% of Tank Capacity

- Bunded confirmed to be designed to a capacity of currently to 11,000 litres (110% of the 10,000 litres HWT)

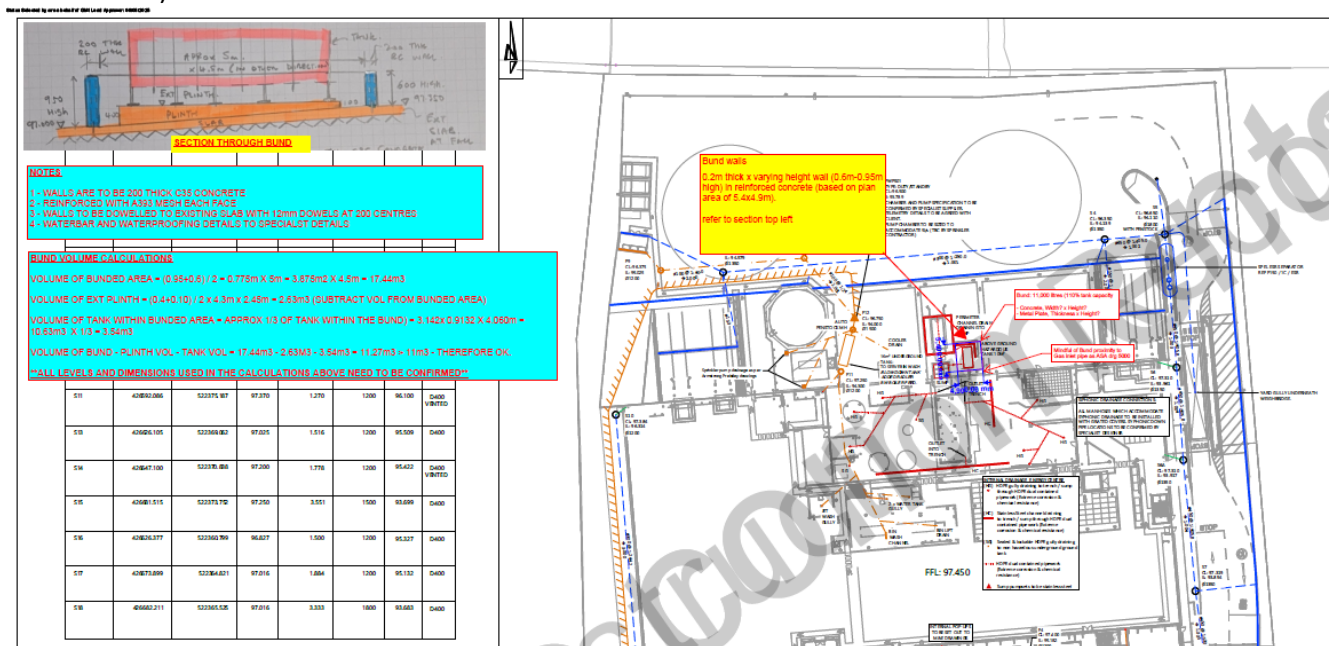


Figure 2: Hazardous wastewater tank containment design

7.0 Diesel Fuel Oil Storage

- There are two diesel/fuel storage tanks on site. Both storages comply with the requirements of the Oil Storage Regulations and the Control of Pollution (Oil Storage) (England) Regulations as detailed below.
- Diesel will be stored within a purpose-built containment unit for the Emergency Diesel Generator.
- The Emergency Diesel Generator fuel tank sits within the shipping container. The Emergency Diesel Generator fuel tank capacity is 2400l. The fuel tank is suspended in a bunded frame within the container as seen in the photos below. It is also contained within a shipping container.





Figure 3: Emergency Diesel Generator fuel oil storage photographs

- The Diesel Fire Pump is located on the site on the North side of the building, in a bespoke pump house, as seen in the photo 'Diesel Fire Pump Location'. Both ' - Diesel Standby Generator and Fire Pump Locations are marked on the drawing 003.
- The Diesel Fire Pump fuel tank capacity is 700l.
- The Diesel Fire Pump fuel tank sits on a frame at the rear of the Pump and is within a building as seen in the photo 'Diesel Fire Pump Fuel Tank' below. There is a small drip tray that the tank is sitting within however the building will provide containment in the 7x10m floor space with bunded thresh.



Figure 4: Emergency diesel fire pump fuel tank photograph

8.0 Site Plan

Please see Appendix 6 for the updated site plan Drawing number 003.



9.0 Standby Generator

The Emergency back-up generator will be used to support the plant and other safety feature to safely shut down in accordance with the ONTNOG procedures.

The standby generator(s):

- The generator is located as shown on Drawing Number 003 on A2.
- The generator is fuelled by diesel. The Standby Generator fuel tank sits within the shipping container. The Standby Generator fuel tank capacity is 2400l. The fuel tank is suspended in a bundled frame within the container as seen in the photos below. It is also contained within a shipping container.
- The Emergency back up generator is used for emergency back up power to safely support the facility to conform with the ONOTC procedures in the event of power failure.
- The size of the Generator is 1.1 MWth.
- The Generator will be operated for 15 minutes per week in accordance with the manufacturer's recommendations as per document 'EDG General Maintenance Schedule'; therefore, the total annual run time will be less than 50 hours per year.
- There is no connection to the grid, and the generator will not export electricity to the grid.
- The generator as it is used for Emergency back-up Services
- Emissions have not been considered in the AQ assessment as it is exempt from ELV considerations. This is also confirmed in the EA RPS353 document.

10.0 Operator Competence

Technically Competent Management for the Facility will be provided by several staff. All staff will be required to undertake continuing competence tests at the 2 yearly intervals. As this a new facility the Awards will not have reached the required 2-year interval yet.

Provided below are the awards/registrations below for the CIWM/WAMITAB awards:

Julie Hudson (Retained Consultant)

Currently Holds:

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Physical and Chemical Treatment of Hazardous Waste (Last Continuing Competence 17 Sep 2025)

CIWM (WAMITAB) Level 4 Medium Risk Operator Competence for Non-Hazardous Waste Treatment and Transfer (Last Continuing Competence 17 Sep 2025)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Open Hazardous Landfill (Last Continuing Competence 29 May 2024)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Open Non-Hazardous Landfill (Last Continuing Competence 29 May 2024)



CIWM (WAMITAB) Level 4 Medium Risk Operator Competence for Open Inert Landfill (Last Continuing Competence 29 May 2024)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Thermal Treatment of Hazardous Waste (Registered 19/12/2024)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Thermal Treatment of Hazardous Waste (Clinical Waste) (Registered 19/12/2024)

David Castor (Operations Manager)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Thermal Treatment of Hazardous Waste (Registered 17/09/2025)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Thermal Treatment of Hazardous Waste (Clinical Waste) (Registered 17/09/2025)

David Mills (Technical Manager)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Transfer of Hazardous Waste (Registered 17/09/2025)

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Physical and Chemical Treatment of Hazardous Waste (Registered 17/09/2025).

11.0 Air Quality ELV Oxides of Nitrogen

The plant has been designed to achieve a daily average NO_x emission limit of 120mg/Nm³, as allowed for by Table 5.6 of the BREF, and an environmental assessment completed on the potential impacts at this level. See below extract from Waste Incineration BREF Table 5.6.

Chapter 5

Table 5.6: BAT-associated emission levels (BAT-AELs) for channelled NO_x and CO emissions to air from the incineration of waste and for channelled NH₃ emissions to air from the use of SNCR and/or SCR

Parameter	BAT-AEL (mg/Nm ³)		Averaging period
	New plant	Existing plant	
NO _x	50–120 ⁽¹⁾	50–150 ⁽¹⁾ ⁽²⁾	Daily average
CO	10–50	10–50	
NH ₃	2–10 ⁽¹⁾	2–10 ⁽¹⁾ ⁽³⁾	
⁽¹⁾ The lower end of the BAT-AEL range can be achieved when using SCR. The lower end of the BAT-AEL range may not be achievable when incinerating waste with a high nitrogen content (e.g. residues from the production of organic nitrogen compounds).			
⁽²⁾ The higher end of the BAT-AEL range is 180 mg/Nm ³ where SCR is not applicable.			
⁽³⁾ For existing plants fitted with SNCR without wet abatement techniques, the higher end of the BAT-AEL range is 15 mg/Nm ³ .			

Figure 5: Extract from BAT



This assessment, completed in accordance with the EA and IAQM guidelines, confirmed that there would be no significant impact on habitat sites. Further to this, an appraisal of Ground Level Concentrations indicates that, following further screening, the impact on the environment can be classed as 'negligible' for NO₂ levels. On that basis the design emission level of 120 mg/Nm³ is considered appropriate for the plant.

The facility will be operated in such a way as to minimise NO_x emissions whilst ensuring that ammonia slip is managed within appropriate levels. For this reason, injection ports and associated temperature probes are being installed at different levels above the combustion chamber to allow the aqueous ammonia to be injected at the most efficient temperature range for the SNCR to take place.

This further allows for the fact that the feedstock for the facility will contain a mix of materials within the EWC definitions and has a highly variable calorific value. (As opposed to a very standard non variable waste with a stable CV i.e. conventional EFW waste streams). High Temperature facilities are designed to manage this variability which has an implication on the combustion system and its controls and therefore needs the flexibility as designed to remain within the BAT-AEL levels.

Selection of SNCR is supported by information reviewed from other similar facilities across Europe that have, following optimisation, been able to achieve lower NO_x emissions and it is therefore considered that once operational, the potential for reducing this NO_x limit can be reviewed as part of an Improvement Condition on the basis of operational tests on the permitted plant.

Other options were considered for the facility but when compared with the already low contribution to local NO_x levels introduce other unnecessary environmental hazards against the selected option. For example, the use of Selective Catalytic Reduction (SCR) incorporates not only the ammonia injection but also the requirement to manage and dispose of catalytic components. Installation of a wet scrubber would also give other environmental concerns in relation to the potential for effluent release and the management of residues from the process. Catalytic bags have also been considered, but the small gain in performance against NO_x is not a commercially feasible solution. A specific optimal temperature range is required to improve the reactivity envelope for the catalytic bags and would potentially decrease the boiler efficiency of the plant.

In summary:

SNCR is BAT for this type of facility.

BAT-AEL is 120mg/Nm³

Negligible contribution to local NO_x levels at this level

Other technologies have further, additional environmental impacts to be considered.

The Air Quality Assessment completed as part of the permit application process has confirmed that which has been confirmed as appropriate through the Air Quality Assessment. The plant will be operated in such a way as to minimise NO_x emissions whilst ensuring that ammonia slip is managed within appropriate levels.

ADM Report – Habitat Sites

5.2.2 - that the annual and daily mean oxides of nitrogen PCs are all less 100% of the respective critical level and therefore, are not significant at all habitat sites considered.



ADM Report – Ground Level Concentrations

The Air Dispersion Model (Document Ref: ECL Ref: OLCO.01.01/ADM) 3.5.2 - The data for annual GLCs indicates that, following further screening, the impact on the environment can be classed as 'negligible' for both annual NO₂ and VOC (as benzene).

12.0 Waste Feed Rate

The nominal design capacity for the installation is 10500 tonnes per annum. The average feed rate is expected to be between 1 t/h and 1.33 t/h based on an expected plant availability of 90%.

The risk assessments provided with application are based on the confirmed feed rate and throughput.

13.0 EWC List - 99 Codes

The EWC List has been amended to remove several EWC codes that are not required for the facility. In addition, the EWC list has been split between High Temperature Incineration and Transfer Hazardous or Transfer Non-Hazardous.

The 99 codes have been significantly reduced with only EWC Codes that have appeared in the EA waste returns published data from DEFRA. The three codes identified, below, do not currently have sufficient information published to provide a description of the waste. As such, we would rely on a pre-acceptance condition that a full waste description and assessment is undertaken before waste are accepted for disposal via incineration.

The current EWC 99 codes have been assessed against the Regulatory Position Statement (Wastes you can accept instead of those ending in 99:RPS 241) and the following wastes are not listed with alternative EWC codes.

With reference to the proposed waste list, in Appendix 7 there is a EWC list and a description of the wastes below that will be accepted under each 99 code proposed. Prior to acceptance the 99 coded waste would require submission of a full WM3 waste assessment to confirm the assigned waste coding.

EWC 19 02 99 - Prior to waste acceptance all 99 Codes will undergo waste classification and WM3 assessment to ensure coding is correct. An example where this code is currently used in the industry is Waste arising from site address ST4 2RS that requires high temperature incineration.

EWC 19 11 99 - Prior to waste acceptance all 99 Codes will undergo waste classification and WM3 assessment to ensure coding is correct. An example where this code is currently used in the industry is Waste oil for incineration arising from site address HD2 1YF, that doesn't meet Recovered fuel oil.

EWC 20 01 99 – Prior to waste acceptance all 99 Codes will undergo waste classification and WM3 assessment to ensure coding is correct. An example where this code is currently used in the industry is where clinical waste collected in Municipal areas that maybe contaminated. This waste is produced by clinical waste management companies including initial Rentokil and PHS for example. This material would need to undergo High temperature incineration.

If the Environment Agency prevents these codes from being securely destroyed via High Temperature Incineration, then the wastes may become orphaned waste streams.



14.0 List of Waste

Please see Appendix 7 for separate waste list for wastes that will be accepted for incineration only.

15.0 List of Wastes for Incineration

Chapter 06 wastes - Fornax to accept only hazardous chemical process wastes that are unsuitable for chemical or physical treatment, based on WM3 classification, however suitable for high temperature incineration. See EWC List, on Appendix 7.

Subchapters 10 01, 10 02, 10 03, 10 05, removed from proposed list.

Subchapters 11 02, 11 03, removed from proposed list.

Subchapter 16 06: Fornax does not propose to accept whole batteries.

Subchapter 17 04: Fornax do not propose to accept metals or metal components for incineration that are not suitable for High temperature incineration based on WM3 classification.

Subchapter 19 07: No waste from this subchapter is proposed for incineration.

Inert wastes (metal, soil, stone, mineral, glass): Fornax does not propose to incinerate inert wastes. Unless contaminated as PFAS Soils. Only contaminated or chemically hazardous components of these materials, if any, would be subject to assessment using WM3 Classification. Batteries: As per the Waste Batteries and Accumulator Regulations 2009, Fornax will not incinerate industrial or automotive batteries.

Subchapter 19 01: This subchapter is not proposed for incineration at Fornax other than waste oil derived from Pyrolysis 19 01 17*.

Waste code 19 01 17* refers to waste oil derived from pyrolysis, which is classified as hazardous. Such waste oils often contain persistent organic pollutants (POPs) and other hazardous constituents that are not amenable to safe physical or chemical treatment. High temperature incineration is the most effective method for ensuring the complete destruction of these hazardous compounds, thereby preventing their release into the environment.

Specific codes

11 02 07*: Fornax will not incinerate waste of this code.

11 03 02*: Fornax will not incinerate waste of this code.

14 06 01*: Fornax will not incinerate waste of this code.

16 01 22: Fornax will not incinerate waste of this code.

The following clarification is provided for the codes below, however owing breadth of waste covered by these codes, full clarification cannot be provided. However, a full characterisation of the waste will be performed as part of Fornax's waste pre acceptance process:

11 01 98*: Contaminated wastes unsuitable for safe physical-chemical treatment due to complex or unstable composition.

19 12 11*: Waste from mechanical treatment of other wastes.

19 12 12: Waste from mechanical treatment of other wastes.

All '99' codes: Described and justified in full in the attached list, with appropriate WM3 classification.



Batteries

Whilst batteries are not accepted for incineration, if they are inadvertently received (e.g. within misclassified loads), they will be:

- Immediately segregated into a secure, ventilated, fire-rated container.
- Stored away from ignition sources.
- Disposed of via an authorised battery treatment facility, with all relevant consignment documentation maintained.

Asbestos

Fornax will not accept or incinerate asbestos-containing waste on site. This is stipulated in Fornax's waste acceptance criteria.

16.0 Batteries

Fornax will not receive waste batteries as a usual waste stream, but they may be onsite as part of clinical waste consignments (for example pacemakers, pumps from medical equipment etc). With specific reference to batteries, they will be handled and stored to minimise the risk of thermal runaway and fire.

As per the Waste Batteries and Accumulator Regulations 2009, Fornax will not incinerate industrial or automotive batteries.

Batteries will be assessed at waste pre acceptance stage with batteries of different chemistry being stored separately from each other in suitable separate sealed containers that are non-reactive and weatherproof. They will be stored a designated chemical storage area for batteries in the racking and labelled.

Emergency procedures will be in place to identify the actions to be taken where issues are identified this will be trained out to all staff. There is a current guidance document out for consultation (Waste batteries: appropriate measures for permitted facilities June 2025). The facility will comply with the requirements of the guidance.

17.0 Asbestos Waste

Fornax will not accept asbestos waste for incineration and the EWC Code has been updated to remove the codes. See Appendix 7.

18.0 Hazardous waste with a hazardous halogenated organic content of more than 1% (including halogenated Persistent Organic Pollutants (POPs))

POPs waste (as defined by Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants) are treated as required by that regulation. This means the treatment must make sure the POP content is destroyed or irreversibly transformed. The only known cost effective way of doing this is by incineration or similar thermal treatment.

As part of the Waste Enquiry the customer will provide detail around the waste and will be asked to provide detailed information on waste composition to allow Fornax to undertake pre waste acceptance checks in



relation to presence of POPs. As detailed in Appendix 8 - Hazardous Waste Acceptance Work Instruction, the presence of POPs in hazardous waste is further evaluated upon arrival on the facility. Waste identified as POPs will be labelled up as requiring high temperature incineration at 1100°C and stored separately from other wastes. The incineration process will operate at 1100°C to treat most of the waste held in the facility. This includes hazardous waste with halogenated organic content of more than 1%.

Waste identified as POPs will not be charged into the kiln unless the correct operating procedure is achieved to meet the 1100°C destruction temperature. This waste will be clearly identifiable to prevent incorrect waste incineration at lower temperatures.

19.0 Cytotoxic, Cytostatic Waste

All clinical facilities providing waste to Fornax for destruction will be pre notified to the site before arrival. As part of the Clinical Waste Acceptance Work Instruction See Appendix 9, every bin will be visually inspected. Clear information is given to explain how to identify cytotoxic or cytostatic waste. These wastes will be either sent straight for destruction or will be stored in a locked secure area with limited access. (Non-conforming waste will be marked as quarantined). As part of the waste acceptance, a label will be affixed to the bin for traceability and visual management which will clearly identify that it must be incinerated at 1000°C or greater. The incineration process will operate at 1100°C to treat most of the waste held in the facility, this includes cytotoxic or cytostatic wastes. This waste will be clearly identifiable to prevent incorrect waste being charged into the hopper for incineration at incorrect temperatures.

20.0 Waste Storage Quantities & Updated FPP

The maximum total combined quantity of hazardous waste and clinical waste stored onsite after at any given time is 1031 tonnes. This is based on 717.48 tonnes of hazardous waste and 313.24 tonnes of clinical waste after a worse case, of 14 days storage, following a prolonged outage. In addition, the site will manage the waste stored on site in order to stay below COMAH storage limits as defined in FPL003 COMAH Limits Work Instruction See Appendix 10.

Workings:

Hazardous Waste Storage

Hazardous waste storage in warehouse

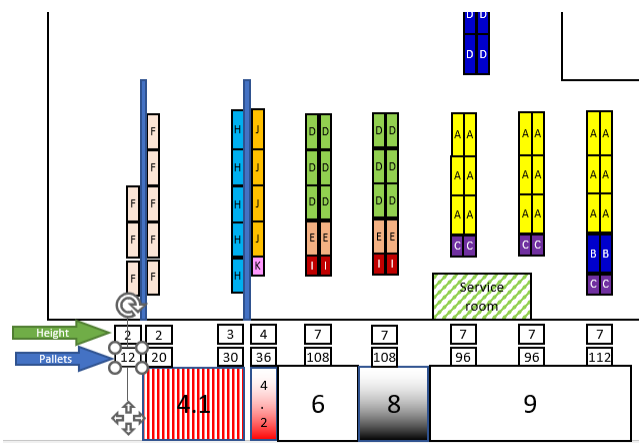


Figure 6: Hazardous waste storage areas



Table 4: Hazardous waste storage in racking (pallets)

Aisle	Pallets
1	12
2	20
3	30
4	36
5	108
6	96
7	112
Total	414

Total hazardous waste pallets in racking = 414

Maximum weight of waste on each pallet = 820kg (based on 4 x 205l drums)
https://assets.publishing.service.gov.uk/media/5a7ca4ae40f0b6629523adf8/LIT_8199_dd704c.pdf

Total hazardous waste storage in warehouse racking = 820kg x 414 = 339480kg = 339.48t

Hazardous waste storage in 3 x designated storage containers

2 x Oxidising agent storage container, 1 x Water reactive storage container, 1 x Flammable liquids storage container – based on maximum storage of 24 IBCs.

Total weight of hazardous waste stored in designated storage containers = 24 tonnes (assuming liquid density of 1000 kg/m³)

Hazardous waste storage in waste reception area

The hazardous waste reception area will be no larger than 20.5 m by 25.2m. This gives a total available working area of 518.6m² of space. Assuming that waste will be arriving on 1.2m x 0.8m pallets, that these pallets contained no more than 820 kg of waste (based on the mass of four typical 200L drums), and that the space utilisation was 80% owing to gaps between pallets, that 354 tonnes of waste could reside in the hazardous waste reception area.



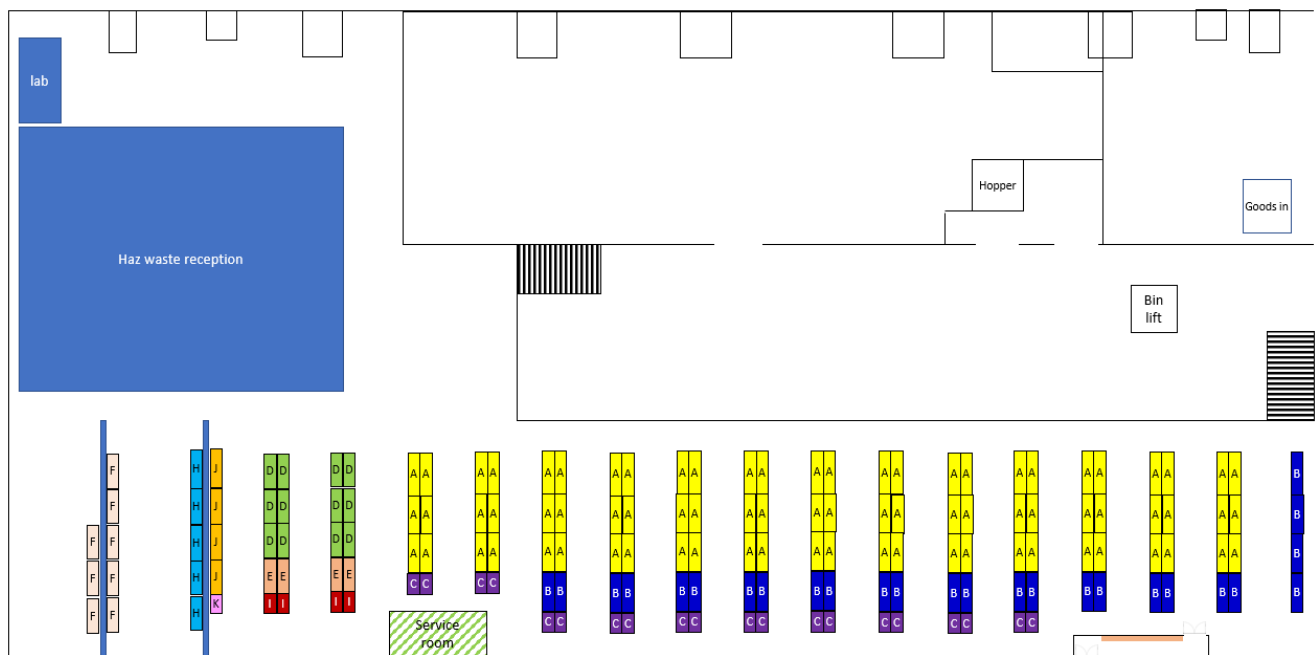


Figure 7: Hazardous waste reception area schematic

Total hazardous waste storage therefore = $339.48 + 24 + 354 = 717.48$ tonnes

Clinical waste storage

The maximum capacity of clinical waste is based on a worse case 14 days' worth of storage at the end of a prolonged outage. This waste is stored in bins in storage racking and designated areas of the warehouse.

The nominal design capacity for the installation is 10500 tonnes per annum.

The average total waste feed rate is expected to be 1.33t/h based on an expected plant availability of 90%.

This equates to a total waste feed rate of 31.9t/day.

Maximum amount of clinical waste feed is based on a provisional feed ratio of 70% clinical to 30% hazardous waste.

Total clinical waste feed per day = $31.96 \times 70\% = 22.37$ t/day.

This equates to 313.24 tonnes of clinical waste after a worse case, of 14 days, following a prolonged outage.

Total waste storage

The maximum total combined quantity of hazardous waste and clinical waste stored onsite after at any given time is 1030.72 tonnes. This is based on 717.48 tonnes of hazardous waste and 313.24 tonnes of clinical waste after a worse case, of 14 days storage, following a prolonged outage.

Please refer to the Updated FPP Document V2 for updated Storage Capacity.



21.0 Sampling Requirements

The site will sample waste as part of the waste acceptance procedure. The Hazardous Waste Acceptance Instruction details how the sampling of sealed containers, will be performed. This covers all aspects of BAT 11 for the sampling of hazardous waste other than clinical waste.

Procedures:

Please see Appendix 11 for the following procedures:

FPL004 Hazardous Waste pre-Acceptance

FPL005 Hazardous Waste Sampling

FPL006 Hazardous Waste Acceptance

Table 5: Sampling requirements

BAT 11	In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures (see BAT 9(c)) including, depending on the risk posed by the incoming waste, the elements given below: For MSW and other non-hazardous waste: • Radioactivity detection • Weighing of the waste deliveries • Visual inspection Periodic sampling of waste deliveries and analysis of key properties/substances (e.g. calorific value, content of halogens and metals/metalloids). For municipal solid waste, this involves separate unloading.
Response/evidence	Fornax will comply with the waste characterisation and pre-acceptance procedures aim to ensure the technical (and legal) suitability of waste operations for waste deliveries prior to the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). Waste deliveries to the HTI will be weighed at the weighbridge and all data regarding the waste tracking will be held in the TEGOS system. Visual spot checking of clinical waste deliveries will be carried out during unloading. The frequency of sampling is set out in the waste pre-acceptance procedure FPL004 and Waste Acceptance Procedure FPL006 for chemical / hazardous wastes/ non - hazardous Waste will be sampled on site in accordance with these procedures. Clinical Waste would be the waste at risk of radioactive materials however the risk is deemed not significant as clinical waste is regulated inspected in accordance with UK radioactive substances regulation which is sufficiently robust so as to minimise the risk of radioactive material inadvertently arriving at the site and therefore radioactivity detection will not be provided.



22.0 Re-packaging of hazardous waste

Table 6: Clarification of repackaging activities with alignment to BAT

78	Sorting is the placing together of containers with other waste containers of the same type, without emptying the contents from the container. You must have a permit that specifically allows you to carry out storage activities (coded D15 or R13).	Fornax complies with this requirement. The site will receive hazardous waste in sealed containers. Waste will be retained in their original packaging. Waste containers may be moved without emptying the contents from the container. Containers will be secured to a pallet or placed in a eurocart. They will be either routed to the kiln for destruction or to storage. The location of the item is stored in the Tegos system. Site operations will be in accordance with the Environmental Permit for the Site. This site has applied for D15 and R13 to comply with this measure.
79	Repackaging is the removal of waste from a container, or into a container. This may involve bulking it with other wastes of the same type from other containers. You must have a permit that specifically allows you to carry out repackaging activities (coded D14 or R12).	Fornax complies with this requirement. Fornax will place containers (still remaining in their original packaging) with other waste containers of the same type together, without emptying the contents from the container. Containers will be secured to a pallet or placed in a eurocart. They will be either routed to the kiln for destruction or to storage. The location of the item is stored in the Tegos system. Site operations will be in accordance with the Environmental Permit for the Site. This site has applied for D14 and R12 to comply with this measure.
80	Bulking of waste that is not regarded as repackaging includes: discharging from a tanker to bulk storage of wastes of the same type tank to tank transfer where both tanks contain wastes of the same type These activities are storage (coded D15 or R13).	Fornax will not undertake this activity on site therefore this appropriate measure is not applicable.
81	You must only bulk or repackage wastes together if they are materially the same. They must not react when they are bulked and they must not change the waste's composition.	Fornax will not undertake this activity as there will be no physio chemical treatment activities as part of the permit application. This appropriate measure is not applicable.
82	If a waste is mixed with other similar wastes, where the resulting mixture does not have significantly different characteristics from the mixed wastes (for example blending compatible combustible or flammable wastes as a fuel), this activity is mixing or blending (coded D13 or R12). Any other mixing that changes a waste is treatment.	Fornax will not undertake this activity as there will be no physio chemical treatment activities as part of the permit application. This appropriate measure is not applicable.



83	You must have a permit that specifically allows you to mix hazardous waste with any: non-hazardous waste hazardous waste in a different category non-waste	Fornax will not undertake this activity as there will be no physio chemical treatment activities as part of the permit application. This appropriate measure is not applicable.
84	You must not mix, bulk or repackage: wastes which could be recovered with other wastes if this means that the waste must now be sent for disposal or a lower form of recovery liquid wastes or infectious wastes with other wastes for the purpose of landfilling oils where this could affect their regeneration or recycling wastes containing Persistent Organic Pollutants (POPs) with another material solely to generate a mixture below the defined low POPs content waste to deliberately dilute it	Fornax will not undertake mixing, bulking activities as defined in the appropriate measure There will be no physio chemical treatment activities as part of the permit application. This appropriate measure is not applicable. Waste will remain in its original packaging container and be loaded into a euro cart or onto a pallet and then transported into the hopper of the kiln where it will be destroyed.
85	You must transfer wastes from containers into other storage vessels using a dip pipe, not by pouring.	Fornax complies with this requirement. Other than for waste acceptance and testing waste is not removed from its original container packaging.
86	Repackaging or mixing must only take place in a dedicated area or store which has the plant and equipment needed to deal with the specific risks of that process. For example, this could include abatement or local exhaust ventilation.	Fornax complies with this requirement. The site benefits from a dedicated waste reception area for waste acceptance inspection which has suitable ventilation. If the waste is placed into euro carts or onto pallets it would occur in this area.
87	Except for small packages with a volume less than 5 litres, or damaged containers, you must move containers using mechanical means. For example, use a forklift truck with a rotating drum handling fitting, or using pumps for liquids.	Fornax complies with this requirement. On site provision is made for wheeled euro carts to transport waste. They are moved via a goods lift up to the mezzanine floor and into the hopper. In addition pallets are moved with either a hand pallet lift or a Fork Lift Truck. Drums are lifted utilising appropriate mechanical handling means.
88	You must label containers of repackaged or mixed wastes so that you can identify their contents and origin through the tracking system. After repackaging, you must move the bulked materials and emptied containers to an appropriate segregated storage area.	Fornax complies with this requirement. Fornax has Waste acceptance procedures for all waste. Upon arrival at site the waste is identified and labeled accordingly so that the contents are identifiable. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached.



		<u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) can be configured as locations/warehouses in Tegos, with defined maximum capacity in terms of: Number of bins/containers/pallets Tonnage (for each waste type) This can be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system is configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g., to quarantine, then to general storage) • Waste is treated/dispatched • Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: Tegos can be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. All containers are stored in appropriate areas on site.
89	You must have a risk assessment and carry out appropriate compatibility testing to make sure that bulked wastes will not react with each other, or with the container into which they are being placed.	Fornax will not undertake this activity as there will be no physio chemical treatment activities as part of the permit application. This appropriate measure is not applicable.

23.0 Waste pre-acceptance, acceptance and tracking appropriate measures; and Waste storage segregation and handling appropriate measures

This response is broken down into three tables, relating to appropriate measures as described in Healthcare waste: appropriate measures for permitted facilities. For each of the appropriate measures, a response is given:

Table 7: Waste pre-acceptance appropriate measures

Table 8: Waste Acceptance Appropriate Measures

Table 9: Waste Tracking Appropriate Measures



Table 7: Waste pre-acceptance Appropriate Measures

1.	You must implement waste pre-acceptance procedures so that you know enough about a waste (including its composition) before it arrives at your facility. You need to do this to assess and confirm the waste is technically and legally suitable for your facility. Your procedures must follow a risk-based approach, considering: - the source and nature of the waste - its hazardous properties - potential risks to process safety, occupational safety and the environment (for example, from odour and other emissions) - knowledge about the previous waste holder(s)	Fornax complies with this requirement. Fornax has Waste pre acceptance procedures for Clinical waste. In addition the waste producers facility audits will be assessed prior to waste acceptance. Tegos tracks waste storage and treatment capacity in real time and is set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) can be configured as locations/warehouses in Tegos, with defined maximum capacity in terms of: - Number of bins/containers/pallets - Tonnage (for each waste type) This can be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system can be configured to update occupancy in real time as: - Incoming waste is accepted (via weighbridge/POD) - Waste is moved between locations (e.g., to quarantine, then to general storage) - Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: Tegos can be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system can be configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit
2.	You must make sure that the advice you give to waste producers about segregating and packaging waste follows the Safe Management of Healthcare Waste (HTM 07 01). Where HTM 07 01 does not specify the colour of packaging	Fornax complies with this requirement. All advice regarding packaging will be provided to customers in accordance with Safe Management of Healthcare Waste (HTM 07 01). Fornax will provide customers with information in relation to the colour coding of the containers where the waste is identified at the enquiry stage.



for a particular type of waste, the waste producer should use the most appropriate colour. They should take into account the nature of the waste and the waste disposal or recovery route needed. For example, it should be: yellow if the waste requires waste incineration orange if alternative treatment is appropriate black or black and yellow if municipal incineration is appropriate or (if possible) an additional non-conflicting colour code	Tegos and electronic records will configure to store the full lifecycle of waste digitally, from pre acceptance through to final removal, and keep it readily accessible, as detailed below: acceptance through to final removal, and keep it readily accessible. <u>Pre-acceptance</u> Producer details (producer, site, unique identifier) and prior holders can be captured in the customer/vendor master or via a pre-acceptance audit. Waste description, EWC/EaW code, packaging, and pre-acceptance conditions can be held against the order/contract. <u>Acceptance</u> At the weighbridge or gate, the system can capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre acceptance vs. actual condition-acceptance vs. actual condition Any discrepancies or non-conformances can be recorded as acceptance notes, and the decision to accept/reject can be logged against the job/consignment. <u>Storage & movement</u> Stock can be tracked by location (quarantine, reception, bulk storage) at the line/lot level. Movement between areas can be recorded with date, time, and operator. <u>Repackaging & treatment</u> When waste is repackaged into bulk containers/pallets, Tegos and electronic records will: • Record the new container ID and location. • Link the original packages/bags to the new container.
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		Update the earliest receipt date on the new container. Treatment will be managed via: A treatment process (e.g. incineration) linked to the batch/lot. A treatment order that records the start/end date, kiln ID, parameters, and operator. <u>Removal off site</u> For waste that is transferred off site (e.g., ash, EoW), the system can: Record despatch date, carrier, vehicle, and destination Link to the waste transfer note (WTN) or consignment note Update the inventory to reflect removal.
3	If you receive waste from a country that does not use the same waste segregation process or colour-coded packaging as set out in HTM 07 01, you must get additional information from the producer. This must confirm the segregation practices and colour-coding they have used so that you can fully understand the waste stream and send it for appropriate treatment.	Fornax complies with this requirement by taking Waste from UK only.
4	You must get the following information in writing when you receive a customer query: details of the waste producer (for example, medical practice) including address and contact details the specific source of the waste – for example, pharmacy, veterinary, primary care, dental, acute care, laboratory details of the waste streams and types produced, including their quantity, physical form, composition, properties, classification and description (you must carry out more detailed checks as part of your audit of the waste pre-acceptance report)	Fornax complies with this requirement. During waste enquiry and pre acceptance the waste completes an electronic waste enquiry form to meet the required needs. The following information will be included: - Details of the waste producer - Address and contact details of the waste producer - The specific source of the waste - Details of the waste streams and types produced - Quantity of the waste - The physical form of the waste - The composition of the waste - The properties of the waste - The classification of the waste - The description of the waste Please note that a more detailed audit check will be carried out as part of the waste pre acceptance process.



5.	Before waste arrives at your facility you must get a representative waste pre-acceptance audit report from the waste producer. You do not need an audit report for: waste produced at domestic premises waste produced at care homes that do not provide nursing care healthcare wastes from non-healthcare activities – as classified under chapter 20 of the LoW.	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.
6.	The audit report must include the following general information: the name, address and contact details of the healthcare waste practice the type of practice, for example, hospital, veterinary clinical, general practice dates for when the audit started and ended a description of the audit, the procedures employed, the auditors, their affiliation and their competence.	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.
7.	It wastes at the practice, for example, pharmacy, primary care, dental acute or laboratory	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.
8	The audit report must identify and list which waste types are produced by each ward, department or area within the premises. The waste types the audit should identify include: cytotoxic and cytostatic contaminated material other pharmaceuticals or pharmaceutically contaminated material – for example, medicinally contaminated syringes, intravenous (IV) therapy bags, tubing, bottles, vials, ampoules waste chemicals – for example, laboratory agents, auto-analyser bottles, diagnostic kits, disinfectants human or animal tissue and associated chemical preservatives sharps, and whether they are contaminated with medicines (even if fully discharged) other infectious wastes	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.



	dental amalgam non-hazardous offensive wastes other non-hazardous wastes, including municipal waste and autoclaved wastes gypsum wastes other than the limited quantities correctly described as infectious	
9	For each of the waste types identified and listed by unit, department or area, the audit report must detail: the waste's written description, type and classification, including List of Waste (LoW) codes the type and colour-coding of the container or packaging the waste is placed in how the packaging is labelled physical form and composition hazardous properties It must also identify whether the correct waste type was present in the container or packaging when it was checked during the audit. It must also compare the waste to its proposed waste classification or description.	Fornax complies with this requirement by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit.
10.	The audit report must include information about: the segregation practices for wastes placed in storage areas and bulk containers or carts specific storage requirements, for example, cold storage or freezing the contents of a representative number of each type of bulk container that were checked visually discussions held with staff that establish the validity of the segregation and storage standards, and the observation and recording of actual practice	Fornax complies with this requirement by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit.
11	The audit report must include a comparison of practice with the requirements of HTM 07-01 Safe management of healthcare waste and of Guidance on the classification and assessment of waste – technical guidance WM3. For example, the medical practice should have an:	Fornax complies with this requirement by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit. Waste Pre acceptance checks and waste acceptance checks are undertaken by Fornax.



	acceptable and working definition of cytotoxic and cytostatic waste where applicable offensive waste stream for healthcare waste	
12.	The report must also include: the findings made for each waste stream, and where applicable, the changes made as a result of this or previous audits information on waste policies, staff training, internal audit regimes, and environmental management systems the estimated quantity of each waste expected to be delivered to the operator from the medical practice per year and in a typical load confirmation that waste does not contain a radioactive source or, when there is a risk of radioactive contamination, confirmation that the waste is not radioactive, unless the permit for your site allows you to accept these materials safety data sheets for single stream product chemicals, laboratory chemicals or pharmaceuticals (if available)	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.
13	The waste producer is responsible for making sure that a waste pre-acceptance audit is carried out for their premises. The audit report must not be completed wholly over the phone or using online tools. Physical presence at the practice is needed. This may be provided by an appropriately trained and experienced member of site staff or an external auditor.	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit.
14	Where a medical practice produces 5 tonnes or more of clinical waste per year, the first audit must cover the entire practice. If this is satisfactory, and identifies consistent practice, you can reduce the scope of each subsequent annual audit to cover at least one third of the units, wards and departments. A 3-year audit cycle must include all units, wards and departments. If a medical practice produces less than 5 tonnes of clinical waste per year each audit should include the entire practice. It should be	Fornax complies with this requirement as Fornax are familiar with the audit schedule and premises type against frequency. A flagging system is built into Tegos system.



	clear in the audit report which units, wards and departments have been inspected.	
15	You must obtain and assess a waste pre-acceptance audit report before you take delivery of the first batch of waste from each medical practice. You must then do this at the following minimum frequencies, every: 12 months for each medical practice that produces 5 tonnes or more of clinical waste in any calendar year 2 years for each veterinary practice, dental practice and laboratory that produces less than 5 tonnes of clinical waste in any calendar year 5 years for other healthcare waste producers	Fornax complies with this requirement and the procedure is provided in Document Ref: Clinical Waste Pre Acceptance Fornax will be compliant by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit.
16	The audit report will no longer be valid for pre-acceptance purposes: once the time intervals are exceeded if the producer makes significant changes to on-site practices if the waste changes if you find that the waste received contains significant non-conformances to the pre-acceptance information – for example, it contains a waste type that was not included in the pre-acceptance audit of the producer	Fornax complies with this requirement and the procedure is provided in Document Ref: Clinical Waste Pre Acceptance Fornax will be compliant by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit. Audits will be tracked using the Tegos system and waste will not be permitted to be accepted on site if the Audit frequency has not been complied with.
17	The staff doing the assessment of the waste pre-acceptance audit report must have the professional skills, training and experience needed. They must have a clear understanding of healthcare waste and its: • Composition • Classification • Packaging and transport	Fornax complies with this requirement as Fornax will be compliant by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit. Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax.
18	These staff must also understand: the wastes associated with specific healthcare activities any conditions within the permit that relate to these wastes the requirement to complete waste consignment and transfer notes	Fornax complies with this requirement. Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax.



19	If the audit report is partially incomplete or inadequate, because it does not meet all the requirements set out in appropriate measures 1 to 18, you must request the missing information (or another audit report). You must assess this before you accept the waste.	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3 rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax.
20	If the audit report is acceptable (it meets all the requirements set out in appropriate measures 1 to 18) you must technically assess the suitability of the wastes for on-site treatment (or transfer) to make sure you can meet your permit conditions. You must not accept wastes which are not suitable.	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit. Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3 rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax.
21	You must keep records that relate to pre-acceptance for a minimum of 3 years in a computerised process control system. For example, this includes: • audit reports • assessment of the reports • additional information received • your assessment that the waste is acceptable	Fornax complies with this requirement by being supplied waste by 3 rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3 rd party or a copy of the 3 rd parties compliance audit. Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3 rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax. Records are kept on the Tegos system for a minimum of 3 years.
22	If an enquiry from a waste producer does not lead to receiving waste, you do not need to keep records.	Fornax complies with this requirement and if the Waste Pre Acceptance does not come to fruition the records will not be kept on file.
23	You must keep separate the roles and responsibilities of sales staff and technical staff. If sales staff are involved in waste enquiries then technical staff must do a final technical assessment before approval. You must use this final technical check, independent of commercial considerations, to make sure that you: • only accept wastes that are suitable for the site • avoid accumulating waste • have enough storage and treatment capacity	Fornax complies with this requirement by having segregated roles between the technical and commercial functions. Technical staff will have no involvement in commercial decision making. Conversely, commercial roles will not be involved or have influence in the waste acceptance process or technical matters.



24	The waste facility operator is responsible for making sure they carry out appropriate pre-acceptance checks and subsequent assessments on the waste received from each producer. You can employ a third party to carry out these checks and assessments for you, for example, if you receive the waste from a waste transfer station. Where this is the case you must meet the following measures as a minimum: • the third party must provide you with details of any audit tools or methodologies and assessment criteria used – these must meet the standards in this guidance • you must periodically review their pre-acceptance checks and assessments (at least annually) to make sure pre-acceptance checks, subsequent assessments, waste classification and descriptions meet the standards in this guidance • if you employ others to carry out the pre-acceptance checks and assessments for you these must cover all relevant producers from whom you collect waste, including new customers • you must keep records of the third party's pre-acceptance checks and assessments and a summary report that demonstrates they have carried out the correct checks on wastes from relevant producers	Fornax complies with this requirement by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax. Records of all audits are kept by Fornax against the producer's file.
25	The summary report must: • list the producer types, for example, dental practice • detail the waste types and waste streams produced and destined for the permitted facility, including details of their composition, classification and any hazardous properties • describe the containers or packaging used for each waste stream (including colours)	Fornax complies with this requirement by being supplied waste by 3rd parties rather than direct from healthcare facility. Fornax will require either a copy of the original audit along with an inspection /audit report from the 3rd party or a copy of the 3rd parties compliance audit. Fornax staff undertaking the audits will be trained to appraise the information. Fornax also have access to 3rd Party consultants who are able to undertake clinical waste audits on behalf of Fornax. Records of all audits are kept by Fornax against the producers file. All audits will follow the set criteria as defined in the guidance and appropriate measures.



	confirm that the relevant appropriate measures for waste pre-acceptance have been completed for all relevant producers – where this is not the case for a particular producer, the report must state what has been done	
26	The summary report must also: - confirm any issues the third party has identified and what action they have taken with the producers about the wastes affected - be updated if any details about the producers or the wastes change	Fornax complies with this requirement The procedure is provided in Document Ref: Clinical Waste Pre Acceptance. Records of all audits are kept by Fornax against the producers file. All audits will follow the set criteria as defined in the guidance and appropriate measures.
27	The information in the summary report must be relevant to the waste types that your facility is permitted to accept. It must be taken from the pre-acceptance audits carried out on the relevant producer premises, which must comply with the requirements of this guidance.	Fornax complies with this requirement. The procedure is provided in Document Ref: Clinical Waste Pre Acceptance Records of all audits are kept by Fornax against the producers file. All audits will follow the set criteria as defined in the guidance and appropriate measures.
28	The operator must be able to get (without unreasonable delay) a copy of the pre-acceptance audit report and assessment about any individual producer. This may be needed for operational reasons or because an Environment Agency officer asks to see it.	Fornax complies with this requirement. The procedure is provided in Document Ref: Clinical Waste Pre Acceptance Records of all audits are kept by Fornax against the producers file. All audits will follow the set criteria as defined in the guidance and appropriate measures.

Table 8: Waste Acceptance Appropriate Measures

1.	You must implement waste acceptance procedures to check that the characteristics of the waste received matches the information you obtained during waste pre-acceptance. This is to confirm that the waste is as expected, and you can accept it. If it is not, you must confirm that you can accept it as a non-conforming waste, or you must reject it.	Fornax complies with this requirement as Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Upon acceptance the waste will be checked to ensure integrity of the container assessed against the pre acceptance declaration and sampled in accordance with the site waste acceptance procedures. If the waste is not as expected the waste will be required to be reassessed to confirm waste properties. If it is confirmed that the waste can be accepted as a non-conforming waste, then records will be updated accordingly with the decision, else it must be rejected. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached.
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		<u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: • Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. • The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
2.	Your procedures must follow a risk-based approach, considering: • the source, nature and age of the waste • the waste's hazardous properties • potential risks to process safety, occupational safety and the environment (for example, from odour and other emissions) • knowledge about the previous waste holder(s)	Fornax complies with this by ensuring all advice regarding packaging will be provided to customers in accordance with Safe Management of Healthcare Waste (HTM 07 01). Fornax will provide customers with information in relation to the colour coding of the containers where the waste is identified at the enquiry stage. Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Waste is assessed by a site chemist to ensure it is acceptable on site. The chemist will assess the hazardous properties of the waste and ensure that it either sent for immediate destruction by incineration or routed to the appropriate storage area in accordance with the hazardous properties.



	Fornax will conform to ISO45001 for Health and Safety and have in place appropriate Risk assessments, working procedures and staff training. Appropriate PPE will be issued. The site has active Odour Management and is detailed in FORNAX-OMP. All waste is recorded in the Tegos system which stores the full lifecycle of waste digitally, from pre-acceptance through to final removal, and keep it readily accessible. <u>Pre-acceptance</u> The following will be captured: • Producer details (producer, site, unique identifier) • prior holders will be captured in the customer/vendor master or via a pre acceptance audit. • Waste description • EWC/EaW code packaging • and pre acceptance conditions will be held against the order/contract. <u>Acceptance</u> At the weighbridge or waste reception, the system will capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre-acceptance vs. actual condition Any discrepancies or nonconformances will be recorded using the non-conformance procedure and the decision to accept/reject will be logged against the job/consignment. <u>Storage & movement</u> Stock will be tracked by location (quarantine, reception, bulk storage) at the line/lot level. Movement between areas will be recorded with date, time, and operator. <u>Repackaging & treatment</u>
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		When waste is repackaged into bulk containers/pallets, Tegos will: - Record the new container ID and location. - Link the original lots into the new container. - Update the earliest receipt date on the new container. Treatment will be managed via: - A treatment process (e.g. incineration) linked to the batch/lot. - A treatment order that records the start/end date, kiln ID, parameters, and operator. <u>Removal off site</u> For waste that is transferred off site (e.g. ash, EoW), the system will: - Record despatch date, carrier, vehicle, and destination. - Link to the waste transfer note (WTN) or consignment note. - Update the inventory to reflect removal.
3	Other than in an emergency (for example, taking waste resulting from an emergency incident clean-up), you must only receive pre-booked wastes onto site that have been adequately pre-accepted and that are consistent with the pre-acceptance information.	Fornax complies with this by ensuring all waste is pre booked and pre waste acceptance is undertaken with full assessment of the waste taking place upon receipt to ensure compliance with the original Pre Waste acceptance declaration. Fornax has Waste pre acceptance and waste acceptance procedures for Clinical waste detailing compliance with the requirements of the Appropriate Measures. In addition, the waste producer's facility audits will be assessed prior to waste acceptance and once waste is received on site. Fornax will comply with this appropriate measure. All waste is recorded in the Tegos system which stores the full lifecycle of waste digitally, from pre-acceptance through to final removal, and keep it readily accessible. <u>Pre-acceptance</u> Producer details (producer, site, unique identifier) and prior holders will be captured in the customer/vendor master or via a pre acceptance audit. - Waste description - EWC/EaW code



		• Packaging • Pre acceptance conditions will be held against the order/contract. <u>Acceptance</u> At the weighbridge or waste reception, the system will capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre acceptance vs. actual condition Any discrepancies or nonconformances will be recorded using the non-conformance procedure and the decision to accept/reject will be logged against the job/consignment. <u>Storage & movement</u> Stock will be tracked by location (quarantine, reception, bulk storage) at the line/lot level. Movement between areas will be recorded with date, time, and operator. <u>Repackaging & treatment</u> When waste is repackaged into bulk containers/pallets, Tegos will: • Record the new container ID and location. • Link the original lots into the new container. • Update the earliest receipt date on the new container. Treatment will be managed via: • A treatment process (e.g. incineration) linked to the batch/lot. • A treatment order that records the start/end date, kiln ID, parameters, and operator.
4	All relevant storage areas (quarantine, reception and general) and treatment processes in your facility must have the physical capacity needed for the waste you receive. You must not receive wastes if this capacity is not available. The amount of waste you receive must also comply with storage limits in your permit.	Fornax complies with this requirement by using Tegos or electronic document systems which will apply inventory limits upon the storage. The wastes will not be allowed to be placed on an order to be received if the storage area has insufficient capacity. The systems will also ensure that the storage limit does not exceed lower tier COMAH thresholds nor the permit storage limits.



5.	You must visually check waste containers and packages and verify them against pre-acceptance information and transfer documentation before you accept them on site.	Fornax complies with this requirement. The site chemist upon acceptance the waste will be checked to ensure integrity of the container assessed against the pre acceptance declaration and sampled in accordance with the site waste acceptance procedures.
6.	You must weigh each consignment of waste on arrival to confirm the quantities against the accompanying paperwork, unless alternative reliable systems are available (for example, based on volume). You must record the weight in the computerised waste tracking system.	Fornax complies with this requirement as part of the waste acceptance process, waste lots will be weighed by balance and recorded on the computerised waste tracking system (Tegos system).
7.	You must check and validate all transfer documentation and resolve discrepancies before you accept the waste. If you believe the incoming waste classification and description is wrong or incomplete, then you must address this with the original waste producer during waste acceptance. You must record any non-conformance. If you have assessed the waste as acceptable for on-site storage or treatment, you must document this.	Fornax complies with this requirement by undertaking the following actions: <u>Pre acceptance</u> A full audit and validation will be undertaken with regards to the following information: Producer details (producer, site, unique identifier) and prior holders will be captured in the customer/vendor master or via a pre acceptance audit. • Waste description • EWC/EaW code • Packaging • Pre acceptance conditions will be held against the order/contract. <u>Acceptance</u> At the weighbridge or waste reception, the system will capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre acceptance vs. actual condition Any discrepancies or nonconformances will be recorded using the non-conformance procedure and the decision to accept/reject will be logged against the job/consignment. This will include recording the discrepancy and communication with the waste customer.
8	After you have completed the initial visual inspection and confirmatory checks, you must offload waste containers into a dedicated reception or	Fornax complies with this requirement. As detailed in the Clinical Waste Acceptance Work Instruction, after waste has been delivered to site, it will be received into the dedicated waste reception area and routed to either designated storage or immediate incineration.



	storage area. You must not unload wastes if you do not have enough space.	Fornax will comply by using Tegos or electronic document systems which will apply inventory limits upon the storage. The wastes will not be allowed to be placed on an order to be received or unloaded if the storage area has insufficient capacity.
9	Once offloaded, and as soon as practicable to do so, you must assess the waste and verify it for acceptance.	Fornax complies with this requirement. As detailed in the clinical waste acceptance procedure, waste will be assessed for acceptance as soon as practicable to do so. <u>Acceptance</u> At the weighbridge or waste reception, the system will capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre acceptance vs. actual condition Any discrepancies or nonconformances will be recorded using the non-conformance procedure and the decision to accept/reject will be logged against the job/consignment. This will include recording the discrepancy and communication with the waste customer.
10.	You must carry out a thorough visual check of all loads of waste you receive (for example, in carts or similar bulk containers, or on pallets) to identify any non-conforming items. If a specific customer has no non-conformances for 3 months or 6 collections (whichever is the longer period) you can reduce the visual inspection of their waste to a spot check of 1 cart, bulk container or pallet in 10.	Fornax complies with this requirement. Initially, every lot cart of waste will be thoroughly visually inspected, as part of the waste acceptance process. Fornax will comply by carrying out visual inspections of loads at acceptance and at time of disposal loading. Eurocarts will be re locked after inspection. The waste loads will be audited against the customer in order to establish if inspection frequency can be reduced at a later date. Cytotoxic and Cytostatic, drugs will be stored securely with restricted access.
11	If you later identify a non-conforming waste during a spot check, you must take measures to prevent a recurrence (including contacting the customer). You must reinstate thorough visual checks on all loads from that customer until there are no non-conformances for the period stated in appropriate measure 10 (in this section).	Fornax complies with this requirement by following the non-conformance procedure and contacting the customer. Visual checks will go to full frequency for the customer.
12.	The person carrying out waste acceptance checks (the visual inspection of the waste) must be trained to identify and manage any non-conformances in the loads received, complying with this	Fornax complies with this requirement. Fornax will ensure all site staff are appropriately trained to identify wastes and non-conformance. All training is documented on staff records.



	guidance and the conditions of your permit.	
13	You do not need to open healthcare waste bags, sharps boxes, rigid bins or similar packages during the thorough visual check for non-conforming items. The waste pre-acceptance checks determine their contents, and you can verify this by referring to the appropriate colour coded waste packaging. The objective of the thorough visual check is to identify non-conforming items that may be: • unknown • undocumented • unexpected packaging types or colours • a waste type that the facility is not permitted for For example, this could be a cytotoxic or cytostatic sharps box, or rigid yellow bin of unknown content, buried at the bottom of a cart or bulk container under orange clinical waste bags received for alternative treatment.	Fornax complies with this requirement as Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Fornax will use colour coding to verify the contents. Upon acceptance the waste container or bag will be checked to ensure integrity of the container assessed against the pre acceptance declaration and sampled in accordance with the site waste acceptance procedures. If the waste is not as expected the waste will be required to be reassessed to confirm waste properties. If it is confirmed that the waste can be accepted as a non-conforming waste, or it must be rejected. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: • Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the



		expected waste type and quantity, or if the booking would breach a permit limit.
14	Typically, waste is visually checked during cart-to-cart transfers or unloading or tipping operations. It is either directly inspected by the trained operative or via a surveillance camera and screen. If you use the latter, the camera and screen must operate in colour and have a resolution and clarity that is good enough to easily and reliably identify any non-conforming items, so they can be removed.	Fornax complies with this appropriate measure. Fornax does not undertake cart to cart transfers. Visual inspections will be undertaken by Fornax at the unloading stage, as part of the clinical waste acceptance process.
15	You must minimise the manual handling of waste. You should use mechanical unloading technologies where it is possible and practicable to do so.	Fornax comply by ensuring available use of pallet trucks, wheeled bins and lifts remove most manual handling from the process.
16	On arrival, bagged waste must be in, or unloaded into, carts or other rigid, leak proof bulk containers for storage and handling around the site. You must securely close the lid of the cart or other bulk container when you are not loading waste into or out of it.	Fornax complies with this requirement by ensuring on arrival, bagged waste must be in, or unloaded into, carts or other rigid, leak proof bulk containers for storage and handling around the site. Fornax will securely close the lid of the cart or other bulk container when not loading waste into or out of it.
17	On arrival, rigid containers (bins or boxes) must be in, or unloaded onto, enclosed bulk containers (for example, carts) or pallets for storage and handling around the site. To prevent spillages, you must store and handle rigid containers and packaging that contain waste (for example, bins or boxes) in an upright, stable and controlled manner, as far as it is practicable to do so.	Fornax complies with this requirement by ensuring all waste is either stored in a euro cart or pallet. Fornax will store and handle rigid containers and packaging that contain waste in an upright, stable and controlled manner.
18	Where you use pallets, containers must be stable, stacked upright no more than 2.2m high, and secured with shrink wrap. The containers must not extend beyond (over-hang) the sides of the pallet. The shrink wrap must be clear or transparent so that you can identify waste types, damaged containers, leaks or spillages and incorrectly stacked containers.	Fornax comply as the facility benefits from racking which is designed to stack the euro carts or pallets. Any palletised waste not stored on racking will not be above 2.2m in height. Containers will not extend or overhang the sides of the pallet. Any shrink wrapping will be applied with transparent wrap such that the waste can be suitably inspected.
19	Waste packages must be in sound condition. All containers (boxes and bins) must have well-fitting lids or other secure closing mechanisms. You must deal immediately with any non-conforming packages or put them in a bulk container.	Fornax comply as the site acceptance procedure ensures that the condition of packages are assessed on site. Upon acceptance the waste container will be checked to ensure its integrity is sound and in accordance with the Fornax waste acceptance procedures.



	You must put non-conforming packages into quarantine to be dealt with appropriately. You must record all non-conformances.	Non-conforming waste will be managed in accordance with the non-conformance procedure and on consultation with the customer. Tegos or electronic documents will track and record waste in real time. Non-conforming waste will be recorded using these systems.
20	You must have clear and unambiguous criteria that you use to reject non-conforming wastes. You must also have a written procedure for recording, reporting and tracking non-conforming wastes, including notifying the relevant customer or waste producer to prevent reoccurrence.	Fornax comply with this measure with the Corrective and Preventive Action Procedure FPQ005.
21	All waste packages received must be labelled or marked with a unique identifier. The unique identifier must allow you to track the waste (see appropriate measures for waste tracking) and easily identify the producer of the waste, its type and hazardous properties, and its receipt date.	Fornax complies with this requirement as Fornax has Waste acceptance procedures for Clinical waste. As part of this process, each waste will be given a unique identifier on receipt which will be affixed to the container to ensure its identity is known and can be tracked using Tegos or Electronic document systems. This will include the producer of the waste, its type and hazardous properties, and its receipt date. Tegos tracks waste storage and treatment capacity in real time. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g., to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling.
22	If you receive or store waste packages in a bulk container (for example, a wheeled cart), provided they are from the same producer and contain a single waste stream, you can mark or label the unique identifier on the bulk container for as long as the waste remains in there. Similarly, if you receive waste packages on a pallet, provided they are from the same producer and contain a single waste stream, you can mark or label the	Fornax complies with this requirement as Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Fornax will use colour coding to verify the contents. Upon acceptance the waste container will be checked to ensure integrity of the container assessed against the pre acceptance declaration and sampled in accordance with the site waste acceptance procedures.



	pallet with the unique identifier for as long as the waste remains on it. If you split a bulk or palletised load, you must mark or label each container with the unique identifier so that you can track them.	The waste will be assigned a unique identifier.
23	You must hold all records about waste received on a computerised waste tracking system. This must be able to cross-reference all the available waste stream information for a receipt using the unique identifier. You must update the tracking system whenever you move or treat a waste on site, or send it off site. You must follow your written procedures when you move wastes between different locations (or off site).	Fornax complies with this requirement as Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Fornax will use colour coding to verify the contents. Upon acceptance the waste container or bag will be checked to ensure integrity of the container assessed against the pre acceptance declaration and sampled in accordance with the site waste acceptance procedures. If the waste is not as expected the waste will be required to be reassessed to confirm waste properties. If it is confirmed that the waste can be accepted as a non-conforming waste, or it must be rejected. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked:



		Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
24	If there is a known risk of radioactive contamination (for example, a site is thought to use radioactive materials but it is not clear if all the suitable systems are in place to manage and segregate the wastes produced), you must check the waste to determine that it does not include radioactive material, unless you are permitted to accept these materials.	Fornax complies with this requirement. The Pre Waste acceptance checks will screen out the potential for radioactive waste. As radioactive waste is so strictly regulated the occurrence of it being received on site has been risk assessed as very low. Therefore, Fornax will not conduct radioactive screening at waste acceptance.
25	Your facility must have a dedicated waste quarantine area located within a building.	Fornax complies with this requirement. The site benefits from two waste Quarantine areas within the building and Fornax therefore conform to this measure.
26	Quarantine storage must be for a maximum of 5 working days. You must have written procedures for dealing with wastes you hold in quarantine, and a maximum storage volume. For some limited and specific cases (for example, the detection of radioactivity), you can extend quarantine storage time if the Environment Agency agrees. The maximum storage time must take account of the potential for odour generation, insect infestation and storage conditions, such as refrigeration (for example, for anatomical waste). Quarantine storage must be separate from all other storage and clearly marked as a quarantine area.	Fornax complies with this requirement. Fornax conform by having non-conforming waste procedures are in place detailing the relevant storage time of maximum 5 days unless agreed by the Environment Agency.
27	The waste offloading, reception and quarantine areas must have an impermeable surface with self-contained drainage to prevent any spills entering the storage systems or escaping off site. All surfaces must be of a type and quality that can be disinfected effectively.	Fornax complies with this requirement. Fornax have a self-contained drainage system in place and comply with the Appropriate measures guidance.



Table 9: Waste Tracking Appropriate Measures

1	You must use a computerised tracking system to hold up to date information about the available capacity of the waste quarantine, reception, general and bulk storage areas of your facility. You must use a pre-booking system to make sure that you have enough waste storage and process capacity for the incoming acceptable waste.	Fornax complies with this by using the TEGOS and electronic document waste tracking systems. It is a digital system and inventory to track the location and quantity of waste in the plant. It holds all the information generated during waste pre-acceptance (e.g. date of arrival at the plant and unique reference number of the waste, information on the previous waste holder(s), pre-acceptance and acceptance analysis results, intended treatment route, nature and quantity of the waste held on site including all identified hazards), acceptance, storage, treatment and/or transfer off site. The waste tracking system is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). Fornax has Waste pre acceptance procedures for Clinical waste. In addition, the waste producer's facility audits will be assessed prior to waste acceptance. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked:
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		Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
2	Your waste tracking system must hold all the information generated during: - pre-acceptance - acceptance - storage - repackaging - treatment - removal off site This information must be readily accessible.	Fornax complies with this by: The site will be accredited to ISO9001 relating to Quality and the Tegos system will form part of the Quality audits to ensure all data is accurately recorded and readily available. The Tegos waste tracking system is a digital system and inventory to track the location and quantity of waste in the plant. It holds all the information generated during waste pre-acceptance procedures (e.g. date of arrival at the plant and unique reference number of the waste, information on the previous waste holder(s), pre-acceptance and acceptance analysis results, intended treatment route, nature and quantity of the waste held on site including all identified hazards), acceptance, storage, treatment and/or transfer off site. The waste tracking system is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). Tegos can be configured to store the full lifecycle of waste digitally, from pre-acceptance through to final removal, and keep it readily accessible. <u>Pre-acceptance</u> Producer details (producer, site, unique identifier) and prior holders can be captured in the customer/vendor master or via a pre-acceptance audit. Waste description, EWC/EaW code, packaging, and pre-acceptance conditions can be held against the order/contract. <u>Acceptance</u> At the weighbridge or gate, the system can capture: - Date/time of arrival - Producer details and unique identifiers - Container details (type, size, barcode) - Weight and hazardous properties - Pre-acceptance vs. actual condition



		Any discrepancies or non-conformances can be recorded as acceptance notes, and the decision to accept/reject can be logged against the job/consignment. <u>Storage & movement</u> Stock can be tracked by location (quarantine, reception, bulk storage) at the line/lot level. Movement between areas can be recorded with date, time, and operator. <u>Repackaging & treatment</u> When waste is repackaged into bulk containers/pallets, Tegos can: - Record the new container ID and location - Link the original packages/bags to the new container - Update the earliest receipt date on the new container. Treatment can be managed via: - A treatment process (e.g., incineration) linked to the batch/lot - A treatment order that records the start/end date, kiln ID, parameters, and operator. <u>Removal off site</u> For waste that is transferred off site (e.g., ash, EoW), the system can: Record despatch date, carrier, vehicle, and destination Link to the waste transfer note (WTN) or consignment note Update the inventory to reflect removal.
3	You must create records and update them to reflect deliveries, on-site treatment and despatches. Your tracking system will also operate as a waste inventory and stock control system. It must include this information as a minimum: - the date the waste arrived on site - the original producer's details (or unique identifier) - details of all previous holders - a unique reference number - waste pre-acceptance and acceptance information - the package type and size - the intended treatment or disposal route	Fornax complies with this by using Tegos or electronic documentation to store the full lifecycle of waste digitally, from pre acceptance through to final removal, and keep it readily accessible. The system will include details on: - the date the waste arrived on site - the original producer's details (or unique identifier) - details of all previous holders - a unique reference number - waste pre-acceptance and acceptance information - the package type and size - the intended treatment or disposal route - accurate records of the nature and quantity of wastes held on site, including all hazards – and identifying the primary hazards



	• accurate records of the nature and quantity of wastes held on site, including all hazards – and identifying the primary hazards • where the waste is physically located on site • where the waste is in the designated disposal route • the names of staff who have taken any decisions about accepting or rejecting waste streams and who have decided on recovery or disposal options • details that link each healthcare waste container accepted to its consignment or transfer note • details of any non-conformances and rejections	• where the waste is physically located on site • where the waste is in the designated disposal route • the names of staff who have taken any decisions about accepting or rejecting waste streams and who have decided on recovery or disposal options • details that link each healthcare waste container accepted to its consignment or transfer note • details of any non-conformances and rejections <u>Pre acceptance</u> Producer details (producer, site, unique identifier) and prior holders can be captured in the customer/vendor master or via a pre acceptance audit. Waste description, EWC/EaW code, packaging, and pre acceptance conditions can be held against the order/contract. <u>Acceptance</u> At the weighbridge or gate, the system can capture: • Date/time of arrival • Producer details and unique identifiers • Container details (type, size, barcode) • Weight and hazardous properties • Pre acceptance vs. actual condition Any discrepancies or nonconformances can be recorded as acceptance notes, and the decision to accept/reject can be logged against the job/consignment.
4	The tracking system must be able to report: • the total quantity of waste present on site at any one time • a breakdown by type of the waste quantities you are storing pending treatment, incineration or transfer • an indication of where a batch or consignment of waste is located based on a site plan • the quantity of waste on site compared with the limits authorised by your permit • the length of time the waste has been on site	Fornax complies with this by: Tegos can be configured to generate the required reports requested by the BAT guidance. The system can report: • Total quantity of waste on site • A real-time stock report showing total tonnes of waste currently held across all storage areas. • Breakdown by waste type Stock reports grouped by: • EWC/EaW code • Hazard class (e.g., infectious, offensive, pharmaceutical, cytotoxic, hazardous, etc.) • Treatment status (storage pending treatment, awaiting incineration, ash. • Location on site plan • Waste on site vs. permitted limits A capacity report showing:



	the quantity of end-of-waste product materials on site at any one time, where applicable	- Current stock per storage area - Maximum permitted capacity (by container count and tonnage) % utilisation of waste. - Length of time waste has been on site. Stock ageing reports show: - Date arrived on site - Current age (days/weeks) - Length of time in each status (e.g. quarantine, storage, treatment). - End-of-waste (EoW) product materials If EoW products (e.g., ash, aggregates) are stored on site, these can be managed as separate stock items with: - Origin (linking back to treatment batches) - Current quantity and location - Reporting as a separate line in stock reports.
5	If you receive loose, packaged items (for example, bags or boxes of waste not in labelled bulk containers) collected from multiple premises (for example, collections from smaller producers such as doctor surgeries, dental practices or tattoo parlours) your systems and procedures must allow you to: - track the waste back to the original load received at the facility - see associated waste acceptance information and records	Fornax complies with this requirement. Fornax do not take loose, packaged items collected from multiple premises. The waste is collected and provided by a third-party waste transfer station, who will undertake this requirement prior to the waste being received at Fornax. However, in the eventuality of this changing in the future, Tegos or electronic documented systems will track loose or packaged waste from multiple small producers back to the original load. <u>The systems will :</u> - Capture each individual container/bag/box with a unique identifier (barcode/lot number) and origin producer/site. - Link those containers to the site's intake job or consignment. - Allow operators to drill down from the bulk container/pallet to: - The original load received at the facility - The associated pre-acceptance and acceptance records.
6	If you add individual packages of waste (for example, bags or boxes) to a bulk container or pallet at your facility, your waste labelling and tracking system (including barcode systems) must be able to record this along with the date of the earliest package received. For example, by marking or labelling the container or pallet with the unique identifiers of the	Fornax complies with this by: Tegos's barcode/labelling system is configured to record when individual packages or lots are added to a bulk container/pallet, including the earliest receipt date. <u>When a new bag/box is added to a bulk container or pallet:</u> The operator can scan the container ID and the item's barcode/lot number.



	packages it holds and the earliest receipt date.	<u>Tegos can:</u> - Record the date/time of addition - Update the container's contents list - Maintain the earliest receipt date from the oldest package in that container. <u>The container/pallet can then be marked or labelled with:</u> - Its unique identifier - The earliest receipt date - The list of package IDs it contains (if required).
7	You must store back-up copies of computer records off site. Records must be readily accessible in an emergency.	Fornax complies with this by using Tegos. Tegos is configured so that data is stored in a way that satisfies the offsite backup and emergency access requirement. Tegos is deployed on Microsoft Dynamics 365 Business Central, which automatically backs up the database to Microsoft's cloud infrastructure. Stores copies in geographically separate data centres (offsite).
8	You must hold acceptance records for a minimum of 2 years after you have treated the waste or removed it off site. You may have to keep some records for longer if they are required for other purposes, for example, hazardous waste consignment notes.	Fornax complies with this by using Tegos or electronic documents which will provided the required retention period for acceptance records and related documents. The system is configured so that acceptance records are retained for at least 2 years from the date of treatment or removal off site. This can be enforced via: - Archive policies in Business Central - Data retention rules in the ERP. Where longer retention is required, for such as hazardous waste consignment notes or under other regulatory requirements (e.g., EWC, POPs, permit records), the retention period can be extended, for example: 6 years for hazardous waste records (in line with EWC guidance) - Until permit surrender for certain environmental records. - These retention rules can be implemented in the document management/archive module or via the underlying Business Central retention settings.



24.0 Bin Wash Appropriate Measures

Table 10: Bin wash Appropriate Measures

26.	Once emptied, you must check all bulk containers to make sure you have removed all of the waste and then clean them inside and out. You must disinfect containers that have held infectious waste.	Fornax complies with this requirement. Containers are placed into the bin wash where they are fully disinfected and cleaned with hot water over 60 °C.
27.	You must inspect bulk containers (for example, carts) used to transport waste before each reuse to make sure that: • they have been cleaned and disinfected • they are physically sound • the locking mechanism works • they meet the relevant requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations	Fornax complies with this requirement. A full inspection is undertaken on all carts prior to being released back for use to ensure: • That they have been cleaned and disinfected. • That they are physically sound. • That the locking mechanism works. They meet the relevant requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations.
28.	The methods you use for cleaning and disinfecting surfaces and containers must: • physically remove contamination • be capable of achieving disinfection across the broad spectrum of micro-organisms with the parameters used (time, concentration, temperature, quantity) • not produce emissions of pathogenic bioaerosols or chemical agents, or must make sure these emissions are contained and managed appropriately	Fornax complies with this requirement. The facility will comply with the requirement of this Appropriate Measure. There will be a dedicated cleaning rota implemented daily. Chemical disinfectants that are appropriate for cleaning clinical waste areas will be used on site for cleaning. Bins will be disinfected with hot water over 60 °C to destroy the broad spectrum of micro-organisms. The bin wash area is a contained unit to prevent the spread of pathogens via aerosol spray, in addition the unit also benefits from a sealed drainage system to sewer.
29.	You must: • contain wash-waters within an impermeable area and either discharge them to foul sewer or dispose of them appropriately off site. • prevent run-off into external areas or to surface water drains.	Fornax complies with this requirement. The Site Drainage from the wash waters will be discharged to sewer via a consent to discharge and via a dedicated sealed drainage system which is segregated from the Surface Water and Hazardous drainage systems. The bin wash is self-contained to prevent run off.



- prevent healthcare waste items from being discharged to water (including to sewer).

The bin wash contains filters that prevent the washing discharging healthcare waste to water/sewer.



Figure 8: Bin washing filter

If the filter fills there is an indicator alarm that will notify the operative that it requires attention



25.0 Chemical Waste Appropriate Measures

Fornax can confirm that they will comply with all the following appropriate measures:

The response has been split into separate tables. Each table pertains to a separate sections of the Chemical waste: appropriate measures for permitted facilities.

The following tables are included below:

Table 11: 2.1 Management Systems

Table 12: 2.2. Staff competence

Table 13: 2.3. Accident management plan

Table 14: Accident prevention measures

Table 15: Contingency plan and procedures

Table 16: Plant decommissioning

Table 17: Waste pre-acceptance

Table 18: Waste Acceptance

Table 19: Waste Tracking

Table 11: 2.1 Management Systems

1	You must have and follow an up-to-date, written management system that incorporates the following environmental performance features: You have: • management commitment, including from senior managers • an environmental policy that is approved by senior managers and includes the continuous improvement of the facility's environmental performance You plan and establish the resources, procedures, objectives and targets needed for environmental performance alongside your financial planning and investment. You implement your environmental performance procedures, paying particular attention to: • staff structure and relevant responsibilities • staff recruitment, training, awareness and competence • communication (for example, of performance measures and targets) • employee involvement • documentation	Fornax complies with this requirement. The facility will have an accredited written management system to BS EN ISO14001 that incorporates the following environmental performance features: • Management commitment, including from senior managers. • An environmental policy that is approved by senior management and includes a commitment to continuous improvement of the facility's environmental performance Fornax will plan and establish the resources, procedures, objectives and targets needed for environmental performance alongside financial planning and investment. Fornax implement environmental performance procedures, paying particular attention to: • Staff structure and relevant responsibilities • Staff recruitment, training, awareness and competence • Communication (for example, of performance measures and targets) • Employee involvement • Documentation • Effective process control • Maintenance programmes
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• effective process control • maintenance programmes • managing change • emergency preparedness and response • making sure you comply with environmental legislation You check environmental performance and take corrective or preventative action, paying particular attention to: • monitoring and measurement • learning from incidents, near misses and mistakes, including those of other organisations • records maintenance • independent (where practicable) internal or external auditing of the management system to confirm it has been properly implemented and maintained Senior managers review the management system to check it is still suitable, adequate and effective. You review the development of cleaner technologies and their applicability to site operations. When designing new plant, you make sure you assess the environmental impacts from the plant's operating life and eventual decommissioning. You consider the risks a changing climate poses to your operations. You have appropriate plans in place to assess and manage future risks. You compare your site's performance against relevant sector guidance and standards on a regular basis, known as sectoral benchmarking. You have and maintain the following documentation: • inventory of emissions to air and water • residues management plan • accident management plan • site infrastructure plan • site condition report • odour management plan, if required	• Managing change • Emergency preparedness and response • Making sure you comply with environmental legislation The Management System will be monitored for environmental performance and Fornax will take corrective or preventative action, paying particular attention to: • Monitoring and measurement • Learning from incidents, near misses and mistakes, including those of other organisations • Records maintenance • Independent (where practicable) internal or external auditing of the management system to confirm it has been properly implemented and maintained Senior managers review the management system to check it is still suitable, adequate and effective. Fornax review the development of cleaner technologies and their applicability to site operations. When designing the plant, Fornax have made sure they have assessed the environmental impacts from the plant's operating life and eventual decommissioning. Fornax consider the risks a changing climate poses to operations and have appropriate plans in place to assess and manage future risks. Fornax compare the site's performance against relevant sector guidance and standards on a regular basis, known as sectoral benchmarking. Fornax have and will maintain the following documentation: • inventory of emissions to air and water • residues management plan • accident management plan • site infrastructure plan see drawing 003 • site condition report • odour management plan, • noise and vibration management plan, (Not currently required but will if required) • dust management plan, if required (Not currently required but will if required) • pest management plan, (Not currently required but will if required)
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	• noise and vibration management plan, if required • dust management plan, if required • pest management plan, if required • fire prevention plan, if required • climate change risk assessment, if required Your management system can also include, for example, product or service quality, operational efficiency and health and safety in the workplace.	• fire prevention plan, • climate change risk assessment
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Table 12: 2.2. Staff competence

1	Your site must be operated at all times by an adequate number of staff with appropriate qualifications and competence.	Fornax complies with this requirement. All staff will be appropriately trained for the activities they carry out. Site Technically Competent Management will be on site for the required timescales as required by Environment Agency Guidance. Site Chemist (Technical Manager) will be qualified with Degree or HND in Chemistry standard as a minimum. Technical assessment will be carried out by appropriately trained staff. Site operatives will be trained for the tasks that they are to carry out via several methods such as external qualifications, in-house training courses, Tool Box Talks. Staff training records will be recorded within the training matrix for each employee.
2	The design, installation and maintenance of infrastructure, plant and equipment must be carried out by competent people.	Fornax complies with this requirement. All staff will be appropriately trained for the activities they carry out. Technical assessment will be carried out by appropriately trained staff.



		Site operatives will be trained for the tasks that they are to carry out via several methods such as external qualifications, in-house training courses, Tool Box Talks. Staff training records will be recorded within the training matrix for each employee.
3	You must have appropriately qualified managers for your waste activity who are members of a government-approved technical competency scheme.	Fornax complies with this requirement. Site Technically Competent Management will be on site for the required timescales as required by Environment Agency Guidance. For at least 20% of the operating hours there will be management who are members of the CIWM (WAMITAB).
4	The person carrying out the technical appraisal of a waste's suitability for receipt at pre acceptance must have the minimum of a Higher National Certificate (HNC) in chemistry (or equivalent qualification). For the following wastes, technical appraisals must be carried out by a person who has had enough training to determine the suitability of the waste for the site: • asbestos • contaminated clothing and rags • 'articles', for example waste electronic equipment or batteries • contaminated wood solid non-hazardous waste other than 'mirror entries' (where waste may be allocated to a hazardous entry or to a non-hazardous entry according to the European List of Waste)	Fornax complies with this requirement. The Fornax Site Chemist (Technical Manager) will be qualified with Degree or HND in Chemistry standard as a minimum.
5	If you need to sample, check (other than visually), or test a hazardous waste when you accept it, acceptance must be supervised by someone with the minimum of an HNC in chemistry (or equivalent qualification). At sites where the waste needs only a visual check, the person who receives the waste must have had enough training to be able to identify and manage any non-conformances in the load received.	Fornax complies with this requirement. The Fornax Site Chemist (Technical Manager) will be qualified with Degree or HND in Chemistry standard as a minimum and will either undertake or supervise these activities.



6	You must make sure that any required sample is representative of the waste and has been taken by someone technically competent to do so.	Fornax complies with this requirement. Sampling will be representative as detailed in the Hazardous Sampling Work Instruction HPL005. See an extract from this work instruction below: “Sampling will be conducted based on the waste form and heterogeneity. The following sampling strategy applies: a. Drummed or IBCs of homogeneous liquid waste, heterogeneous liquid waste, slurries or sludges: Using a clean and dry syphon, sample a minimum of 500mL from the top, middle and bottom of the container. A minimum of 3 increment samples are required for homogeneous samples. A minimum of 5 increment samples are required for heterogeneous/biphasic samples. b. Bulk solids: Take a composite sample of a minimum of 500mL from the top, middle and bottom, including the corners and the centre of the container. A minimum of 5 increment samples. c. For liquid containers 5L or less, agitate the entire container, then take a minimum of 3 increment samples using a clean new transfer pipette.” All staff will be appropriately trained for the activities they carry out. Staff training records will be recorded within the training matrix for each employee.
7	Any required analysis must be done by someone with the minimum of an HNC in chemistry (or equivalent qualification).	Fornax complies with this requirement. All staff will be appropriately trained for the activities they carry out. Site Chemist (Technical Manager) will be qualified with Degree or HND in Chemistry standard as a minimum who will



		either undertake this task or supervise another staff member who is qualified to an HNC in chemistry (or equivalent qualification). Technical assessment will be carried out by appropriately trained staff. Site operatives will be trained for the tasks that they are to carry out via several methods such as external qualifications, in-house training courses, Tool Box Talks. Staff training records will be recorded within the training matrix for each employee.
8	Non-supervisory staff must be reliable and technically skilled. Their skills may be based on experience and relevant training.	Fornax complies with this requirement. Site operatives will be trained for the tasks that they are to carry out via several methods such as external qualifications, in-house training courses, Tool Box Talks. Staff training records will be recorded within the training matrix for each employee.

Table 13: 2.3. Accident management plan

1	As part of your written management system you must have a plan for dealing with any incidents or accidents that could result in pollution.	Accident Management Plans - Fornax complies with this requirement. See section 13 of the original Permit application for Emergency Plan, document EP_FNX V1. Within this there are details on the role of an emergency co-ordinator who will take lead responsibility for implementing the plan. Communication, internally and externally, shut down, and post-accident procedures are included within this plan. Fornax undertakes a formal accident incident risk assessment which will be reviewed at least annually. Environmental risks are covered under ISO14001. Fornax operates an integrated management system which is working towards accreditation to ISO9001 / 14001 / 45001. These identify and assess the risks that the facility poses to human health and the environment. Fornax has undertaken an environmental risk assessment, which is documented ERA_FNX V1. Human health risk assessment document in relation to air quality has been undertaken OLCO.01.01_HHRA.
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		Fornax has developed a Fire strategy and undertaken a Fire prevention plan to manage risk associated with fire. The Fornax facility has a suitable fire risk assessment. Any risks from the following will be considered: • Arson or vandalism • Self-combustion, for example due to chemical oxidation • Plant or equipment failure and electrical faults • Naked lights and discarded smoking materials • Hot works (for example welding or cutting), industrial heaters and hot exhausts • Reactions between incompatible materials • Neighbouring site activities • Sparks from loading buckets • Hot loads deposited at the site Incoming waste will be assessed through pre acceptance and acceptance processes to ensure that waste and other hazardous substances are suitably managed, stored and segregated. Fornax will comply by considering the following: • Waste types • Vessels overfilling • Failure of plant and equipment • Failure of containment • Failure to contain firefighting water • Making the wrong connections in drains or other systems • Preventing incompatible substances coming into contact with each other • Unwanted reactions and runaway reactions • Checking the composition of an effluent before emission • Vandalism and arson • Extreme weather conditions, such as flooding or very high winds
2	The accident management plan must identify and assess the risks the facility poses to human health and the environment.	Fornax complies with this requirement by implementing an Accident Management Plan that systematically identifies and assesses the risks the facility poses to human health and the environment, using site-specific risk assessments to evaluate credible accident scenarios, their potential impacts, and the effectiveness of control and mitigation measures, and by defining clear roles, responsibilities, and procedures to prevent, manage, and minimise the consequences of accidents.



3	Particular areas to consider may include: • waste types • vessels overfilling • failure of plant and equipment (for example over-pressure of vessels and pipework, blocked drains) • failure of containment (for example, bund failure, or drainage sumps overfilling) • failure to contain firefighting water • making the wrong connections in drains or other systems • preventing incompatible substances coming into contact with each other • unwanted reactions and runaway reactions • checking the composition of an effluent before emission • vandalism and arson • extreme weather conditions, such as flooding or very high winds	Fornax complies with this requirement by addressing these risks within the Accident Management Plan through a structured, risk-based assessment and defined control measures, considering the following : • waste types • vessels overfilling • failure of plant and equipment (for example over-pressure of vessels and pipework, blocked drains) • failure of containment (for example, bund failure, or drainage sumps overfilling) • failure to contain firefighting water • making the wrong connections in drains or other systems • preventing incompatible substances coming into contact with each other • unwanted reactions and runaway reactions • checking the composition of an effluent before emission • vandalism and arson • extreme weather conditions, such as flooding or very high winds Together, these measures ensure credible accident scenarios are identified, assessed, and effectively controlled to protect human health and the environment.
4	You must assess the risk of accidents and their consequences. Risk is the combination of the likelihood that a hazard will occur, and the severity of the impact resulting from that hazard. Having identified the hazards, you can assess the risks by addressing 6 questions: • how likely is it that the accident will happen? • what may be emitted and how much? • where will the emission go – what are the pathways and receptors? • what are the consequences? • what is the overall significance of the risk? • what can you do to prevent or reduce the risk?	Fornax complies with the appropriate measure by conducting risk assessments detailed in FPS003 for specific site activities. For more complex scenarios, tools such as HAZID and HAZOPs are employed as appropriate.
5	In particular, you must identify any fire risks, for example from: • arson or vandalism	Fornax complies with this requirement with this appropriate measure. Fornax will identify and mitigate fire risks though



	• self-combustion, for example due to chemical oxidation • plant or equipment failure and electrical faults • naked lights and discarded smoking materials • hot works (for example welding or cutting), industrial heaters and hot exhausts • reactions between incompatible materials • neighbouring site activities • sparks from loading buckets • hot loads deposited at the site	management systems, the fire prevention plan and fire risk assessment covering the following areas at a minimum: • Arson or vandalism • Self-combustion, for example due to chemical oxidation • Plant or equipment failure and electrical faults • Naked lights and discarded smoking materials • Hot works (for example welding or cutting), industrial heaters and hot exhausts • Reactions between incompatible materials • Neighbouring site activities • Hot loads deposited at the site
6	The depth and type of accident risk assessment you do will depend on the characteristics of the plant and its location. The main factors to take into account are the: • scale and nature of the accident hazard presented by the plant and its activities • risks to areas of population and the environment (the receptors) • nature of the plant and complexity of the activities, and how difficult it is to decide and justify adequate risk control techniques	Fornax complies with this requirement by applying risk assessment techniques appropriate to level of risk, type, and complexity such as HAZID, HAZOP, LOPA and the site's standard risk assessment format.
7	Through your accident management plan, you must also identify the roles and responsibilities of the staff involved in managing accidents. You must give them clear guidance on how to manage each accident scenario, for example, whether to use containment or dispersion to extinguish fires, or let them burn.	Fornax complies with this requirement. Roles and responsibilities are identified in the job descriptions and in the emergency response procedures. Guidance is provided through documented procedures and training.
8	You must appoint one facility employee as an emergency co-ordinator who will take lead responsibility for implementing the plan. You must train your employees so they can perform their duties effectively and safely and know how to respond to an emergency.	Fornax complies with this requirement by appointing the facility Plant Manager as the overarching Emergency Co-ordinator with lead responsibility for implementing and overseeing the Accident Management and Emergency Plans. During any site emergency, the Shift Team Leader will act as the Emergency Incident Controller, taking operational control of the incident.



		All employees are trained for their emergency roles through induction, task-specific training, toolbox talks and emergency drills, ensuring they can respond effectively, safely and in accordance with the plan to protect human health and the environment.
9	You must also: - establish how you will communicate with relevant authorities, emergency services and neighbours (as appropriate) both before, during and after an accident - have appropriate emergency procedures, including for safe plant shutdown and site evacuation - have post-accident procedures that include making an assessment of the harm that may have been caused by an accident and the remediation actions you will take - test the plan by carrying out emergency drills and exercises	Fornax complies with this requirement. Detailed in the fire prevention plan, table 1, there is a list of all relevant authorities, emergency services and neighbours. This list will be used in the eventuality of an fire to communicate before, during and after an accident. Emergency shut down procedures will be implemented as required and instructed by the Site Emergency Incident controller. These are included in the site management systems. Emergency plans are routinely and periodically tested through training and drills.

Table 14: Accident prevention measures

1	You must keep apart incompatible or segregated wastes and substances by their hazardous properties.	Fornax complies with this requirement. Fornax ensures that incompatible wastes are kept apart based on their hazardous properties through a combination of pre-acceptance controls, on-site testing, defined segregation rules, physical storage design, and formal operating procedures.
2	You must segregate incompatible waste types into bays or store them in dedicated buildings. The minimum requirement is to use a kerbed perimeter and separate drainage collection. You must also have measures in place to prevent containers falling over into other storage areas.	Fornax complies with this requirement as follows: Fornax operates a warehouse building for the storage of waste. Waste is stored in racking which is segregated as appropriate. Fornax ensures that incompatible wastes are kept apart based on their hazardous properties through a combination of pre-acceptance controls, on-site testing, defined segregation rules, physical storage design, and formal operating procedures. Please see attached warehouse segregation plan. Please see drawing 003.



		The site drainage is separated into 3 distinct drainage lines. Clean surface water, foul water and Hazardous drainage to ensure waste waters are kept separated. Flammable solid storage is kept within its own bunded bay with fire resistant walls. Flammable liquid storage is within a purpose-built Chemical store with internal bunding. The warehouse building is bunded to contain spillage. Hazardous liquid wastes are stored in purpose built self-contained structures which contain internal bunding with fire protected.
3	You must make sure you contain the following (where appropriate) and route to the effluent system (where necessary): • process waters • site drainage waters • emergency firefighting water • chemically contaminated waters • spillages of chemicals	Fornax complies with this requirement. Fornax manages process waters, drainage waters, firefighting water, chemically contaminated waters, and chemical spillages through a purpose-designed containment and drainage system, supported by emergency procedures and engineered controls. This is detailed in the Fire Prevention Plan, Draining strategy document and Drainage Plan (Drawing 005).
4	You must be able to contain surges and storm water flows. You must provide enough buffer storage capacity to make sure you can achieve this. You can define this capacity using a risk-based approach, for example, by taking into account the: • nature of the pollutants • effects of downstream waste water treatment • sensitivity of the receiving environment	Fornax complies with this requirement. The site can manage surges and storm water flows through a purpose-designed containment and drainage system, supported by emergency procedures and engineered controls. As part of the design strategy, the site has been developed to ensure adequate storage of fire water. This storage can also be used to accommodate surges and storm water flows. However, the site is not located on a flood plane and is low risk for flooding.
5	You can only discharge waste water from this buffer storage after you have taken appropriate measures, for example, to control, treat or reuse the water.	Fornax complies with this requirement by ensuring that wastewater retained within buffer storage or containment systems is not discharged until appropriate control measures have been applied. Where water is suspected to be contaminated, it is isolated, assessed and managed in accordance with site procedures. This may include treatment, reuse within the process, or removal off site by a suitably permitted contractor. Only water confirmed to be suitable for discharge is released via the appropriate effluent route, ensuring no uncontrolled or harmful discharges to the environment.
6	You must have spill contingency procedures to minimise the risk of an accidental emission of raw materials, products and waste materials, and to prevent their entry into water.	Fornax complies with this requirement by implementing formal spill contingency procedures within the Accident Management and Emergency Plans to minimise the risk of accidental emissions of raw materials, products and wastes. Spill kits and absorbent materials are provided in all relevant areas, and staff are trained in their correct use. Any spill is immediately contained, isolated and cleaned up in



		accordance with written procedures, with contaminated materials managed as waste and removed via appropriate routes. These measures prevent spillages from entering surface water, groundwater or drainage systems and ensure rapid control of any accidental release.
7	Your emergency firefighting water collection system must take account of additional firefighting water flows or firefighting foams. You may need emergency storage lagoons to prevent contaminated firefighting water reaching a receiving water body.	Fornax does comply by ensuring the emergency firefighting water collection system is designed to accommodate additional firefighting water flows. Firefighting water is contained on site within the building and external kerbed areas, with drainage isolation measures in place to prevent contaminated firewater from leaving the site. Where required, retained firefighting water is managed as contaminated effluent and removed for appropriate treatment or disposal, ensuring it does not reach any receiving surface water body.
8	You must consider and, if appropriate, plan for the possibility that you need to contain or abate accidental emissions from: • overflows • vents • safety relief valves • bursting discs If this is not advisable on safety grounds, you must focus on reducing the probability of the emission.	Fornax complies by considering and planning for accidental emissions as part of the management systems. Accidental emissions from overflows, vents, safety relief valves and bursting discs are prevented or mitigated through a combination of engineered design, risk assessment and operational controls. Systems are designed to contain or abate releases using appropriate containment, isolation and controlled discharge arrangements. Where containment is not advisable on safety grounds, Fornax focuses on reducing the probability of emission through robust plant design, operating limits, alarms, inspection and preventive maintenance, and management of abnormal operating conditions. These measures ensure that the likelihood and consequences of any accidental emissions are minimised, protecting human health and the environment.
9	You must have security measures (and staff) in place to prevent: • entry by intruders • damage to equipment • theft • fly-tipping • arson	Fornax complies by implementing proportionate site security measures and staffing arrangements to prevent unauthorised access and malicious acts.
10	Facilities must use an appropriate combination of the following measures: • security guards • total enclosure (usually with fences) • controlled entry points • adequate lighting	Fornax complies by implementing an appropriate combination of physical security, monitoring and staffing measures across the site. This includes total enclosure of the facility with secure perimeter fencing, controlled entry points operated by authorised personnel only, adequate external and internal lighting to deter unauthorised activity, and clear warning signage indicating restricted access and



	• warning signs • 24-hour surveillance, such as CCTV	hazards. The site is supported by 24-hour surveillance using CCTV, with monitored coverage of access points, storage areas and key infrastructure. Trained staff and management oversight ensure these measures are maintained and effective, providing robust protection against unauthorised access, theft, fly-tipping, vandalism and arson.
11	There are 3 fire prevention objectives. You must: • minimise the likelihood of a fire happening • aim for a fire to be extinguished within 4 hours • minimise the spread of fire within the site and to neighbouring sites	Fornax complies by meeting the three fire prevention objectives as detailed in the fire prevention plan.
12	You must have appropriate systems for fire prevention, detection and suppression or extinction.	Fornax complies as it has a state of the art fire prevention system incorporating automated detection and suppression of fires. The system is designed and operated in accordance with FM Global standards, and is designed to extinguish fires within 1 hour of detection.
13	You must have suitable procedures and provisions (such as fire resistant stores, automatic alarms and sprinklers) to store certain types of hazardous waste.	Fornax complies by implementing suitable procedures and physical provisions for the safe storage of hazardous waste. Hazardous wastes are stored in accordance with the Fire Risk Assessment and Fire Prevention Plan, including the use of fire-resistant storage cabinets and designated storage areas appropriate to the waste type. Storage arrangements minimise ignition risk, prevent fire spread and allow safe access for emergency response. Automatic fire detection and alarm systems provide early warning, and storage areas are supported by appropriate fire-fighting equipment and emergency procedures. These measures ensure hazardous waste is stored safely and risks to people, the environment and plant are minimised.
14	Your facility must have enough water supplies to extinguish fires. You must have an alternative type of fire protection system if you store or treat any water-reactive waste, for example dry powder extinguishers.	Fornax complies by ensuring that sufficient water supplies are available to support fire-fighting activities, including use by the Fire and Rescue Service, in accordance with the Fire Risk Assessment and Emergency Preparedness arrangements. Calculations are provided in the fire prevention plan.
15	You must isolate drainage systems from flammable waste storage areas to prevent fire spreading along the drainage system by solvents or other flammable hydrocarbons.	Fornax complies with this appropriate measure. Flammable liquid storage containers are isolated from drainage systems as they are contained within structures with internal bunding. The warehouse and energy centre are contained with internal bunding which isolate waste from drainage systems.



		Surface and foul water drainage systems can be isolated on site using Penstock valves as part of the emergency arrangements.
16	You must regularly inspect and clean your site to prevent the build-up of loose combustible material (including waste and dust), particularly around treatment plant, equipment and other potential sources of ignition.	Fornax complies by carrying out regular inspections, housekeeping and cleaning to prevent the build-up of loose combustible materials, including waste and dust. The site, treatment plant, equipment and conveyors are inspected routinely and cleaned to prevent accumulation around potential ignition sources. Loose material is removed promptly when identified, and cleaning activities are managed through defined operating and maintenance procedures to minimise fire risk.
17	You should share and communicate accident management and fire prevention plans with your local fire and rescue service.	Fornax complies by sharing and communicating its accident management, fire prevention and emergency response arrangements with the local Fire and Rescue Service. Relevant plans are made available to support familiarisation with site hazards, layout and fire-fighting provisions, and are reviewed and updated as necessary to ensure effective emergency response and ongoing cooperation.
18	You must assess areas of the site where explosive atmospheres could occur and, where appropriate, classify them into hazardous zones in accordance with the Dangerous Substances and Explosive Atmospheres Regulations. Plant and equipment used in these zones must be ATEX compliant.	Fornax complies by assessing the site to identify areas where explosive atmospheres could occur and, where required, classifying these areas into hazardous zones in accordance with the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). This assessment informs the selection, installation and operation of plant and equipment.
19	You must maintain plant control in an emergency – use one or a combination of the following measures: • alarms • process trips and interlocks • automatic systems based on microprocessor control and valve control • tank level readings such as ultrasonic gauges, high level warnings, process interlocks and process parameters	Fornax complies by maintaining plant control during emergency conditions through a combination of alarms, process trips, interlocks and automated control systems. The facility uses automatic systems based on microprocessor and valve control to place plant into a safe state when abnormal conditions are detected. Process parameters and tank levels are monitored, with high-level warnings and interlocks provided where relevant to prevent loss of control. These measures ensure that the plant can be safely managed and shut down during emergency situations, minimising risks to people, the environment and plant.
20	You must: • make sure all the measurement and control devices you would need in an emergency are easy to access and will operate in an emergency • maintain the plant so it is in a good state through a preventive	Fornax complies by ensuring that all measurement and control devices required during an emergency are clearly identified, easily accessible and designed to operate under emergency conditions. The plant is maintained in a safe and reliable condition through a preventive maintenance programme supported by routine inspection, testing and control checks. Physical protection measures, including suitable barriers, are used where necessary to prevent



	maintenance programme and a control and testing programme • use techniques such as suitable barriers to prevent moving vehicles damaging equipment • have procedures in place to avoid incidents due to poor communication between operating staff during shift changes and after maintenance or other engineering work	damage to plant and equipment from vehicle movements. Clear operating procedures are in place to manage shift handovers, maintenance activities and engineering work, ensuring effective communication between staff and preventing incidents arising from loss of information or control.
21	You must: • keep an up-to-date record of all accidents, incidents, near misses, changes to procedures, abnormal events, and the findings of maintenance inspections • investigate accidents, incidents, near misses and abnormal events and record the steps you take to stop them reoccurring • maintain an inventory of substances, which are present (or likely to be) and which could have environmental consequences if they escape – many apparently innocuous substances can damage the environment if they escape • have procedures for checking raw materials and wastes to make sure they are compatible with other substances they may accidentally come into contact with.	Fornax complies by maintaining accurate and up-to-date records of all accidents, incidents, near misses, abnormal events, procedural changes and maintenance inspection findings. All such events are investigated to identify root causes, with corrective actions recorded and implemented to prevent recurrence. An inventory of substances present or likely to be present on site is maintained to identify materials that could cause environmental harm if released. Procedures are in place for the checking and acceptance of raw materials and wastes to ensure compatibility and to prevent adverse reactions with other substances they may come into contact with.

Table 15: Contingency plan and procedures

1	You must have and implement a contingency plan, which makes sure you: • comply with all your permit conditions and operating procedures during maintenance or shutdown at your site, or elsewhere • do not exceed storage limits in your permit and you continue to	Contingency plan and Procedures - Fornax complies with this appropriate measure. See Section 13 of the application. This includes the emergency plan and OTNOC which includes: • Detailed contingency procedures. • Communication requirements of the Contingency plan. • Consideration for future incoming waste.
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	apply appropriate measures for storing and handling waste stop accepting waste unless you have a clearly defined method of recovery or disposal and enough permitted storage capacity	Auditing mechanisms for the contingency plans. That Fornax does not discount alternative disposal or recovery options on the basis of extra cost or geographical distance
2	You should have contingency procedures to make sure that, as far as possible, you know in advance about any planned shutdowns at waste management facilities where you send waste.	Fornax complies by maintaining contingency procedures to identify and manage planned shutdowns at off-site waste management facilities to which waste is sent. Communication arrangements are in place with contractors and receiving facilities to ensure advance notification of planned outages or restrictions. This information is used to adjust waste acceptance, storage and treatment arrangements as necessary, ensuring continuity of compliance and preventing operational or environmental risk.
3	You must make your customers aware of your contingency plan, and of the circumstances in which you would stop accepting waste from them.	Fornax complies by clearly communicating its contingency plan to customers, including the circumstances under which waste acceptance may be restricted or stopped. Customers are made aware of these arrangements through contractual terms, waste acceptance procedures and operational communications, ensuring they understand when Fornax may suspend acceptance to maintain safe, compliant and environmentally protective operations.
4	You should consider whether the sites or companies you rely on in your contingency plan: - can take the waste at short notice - are authorised to do so in the quantities and types likely to be needed – in addition to carrying out their existing activities	Fornax complies by ensuring that all sites and companies relied upon within its contingency arrangements are assessed for their ability to accept waste at short notice. Alternative facilities are selected based on their authorisation to receive the relevant waste types and quantities, in addition to their existing permitted activities. These arrangements are reviewed as part of contingency planning to ensure that suitable, compliant capacity is available to manage waste safely and without environmental risk in the event of disruption.
5	You should not discount alternative disposal or recovery options on the basis of extra cost or geographical distance if doing so means you could exceed your permitted storage limits, or compromise your storage procedures.	Fornax complies by considering alternative disposal or recovery options where necessary to maintain compliance with permitted storage limits and storage procedures. Decisions on alternative facilities are based on maintaining safe and compliant waste management and are not discounted solely on the basis of additional cost or geographical distance where doing so would increase environmental or operational risk.
6	You must not include unauthorised capacity in your contingency plan. If your contingency plan includes using temporary storage for additional waste	Fornax complies by ensuring that its contingency plan only relies on authorised treatment and storage capacity. No unauthorised capacity is included within contingency arrangements. Where temporary on-site storage is



	on your site, you must make sure your site is authorised for this storage and you have the appropriate infrastructure in place.	identified as part of contingency planning, Fornax will ensure that the site is appropriately authorised for such storage and that suitable infrastructure, controls and management arrangements are in place to maintain safe and compliant operations.
7	Your management procedures and contingency plan must: • identify known or predictable malfunctions associated with your technology and the procedures, spare parts, tools and expertise needed to deal with them • include a record of spare parts held, especially critical spares – or state where you can get them from and how long it would take • have a defined procedure to identify, review and prioritise items of plant which need a preventative maintenance regime • include all equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health • identify ‘non-productive’ or redundant items such as tanks, pipework, retaining walls, bunds, mobile plant, reusable waste containers (for example wheeled carts), ducts, filters and security systems • make sure you have the spare parts, tools, and competent staff needed before you start maintenance	Fornax complies by ensuring that its management procedures and contingency plan identify known and predictable malfunctions associated with the technology used on site, together with the procedures, spare parts, tools and competent personnel required to respond effectively. Records are maintained of spare parts held on site, particularly critical spares, or of their availability and expected delivery times. A defined process is in place to identify, review and prioritise plant and equipment requiring preventative maintenance, including all items whose failure could directly or indirectly impact human health or the environment. Non-productive or redundant equipment is identified and managed to prevent risk. Maintenance activities are planned and controlled to ensure that appropriate spares, tools and competent staff are available before work commences.
8	If you produce an end-of-waste material at your facility, your contingency planning must consider issues with storage capacity for end-of-waste products and materials that fail the end-of-waste specification.	This appropriate measure does not apply. Currently the site does not have/produce any End of Waste materials.
9	Your management system must include procedures for auditing your performance against all of these	Fornax complies with this appropriate measure by operating an internal audit system in accordance with ISO 9001/145001/45001 and requirements of the Environmental Permit.



	contingency measures and for reporting the audit results to the site manager.	
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Table 16: Plant decommissioning

1	You must consider how you will decommission the plant at the design stage, and plan how you will minimise risks during decommissioning.	Fornax complies with this appropriate measure. Fornax maintains a decommissioning plan to demonstrate that it ensures that the plant will be decommissioned without causing pollution and that the site will be returned to a satisfactory condition.
2	For existing plants where potential risks are identified, you must have a programme of design improvements. These design improvements need to make sure you: avoid using underground tanks and pipework – if it is not economically possible to replace them, you must protect them by secondary containment or a suitable monitoring programme drain and clean out vessels and pipework before dismantling use insulation which you can dismantle easily without dust or hazard use recyclable materials, taking into account operational or other environmental objectives	The Fornax North East Facility is a new plant, therefore this appropriate measure is not applicable.
3	You must have and maintain a decommissioning plan to demonstrate that: plant will be decommissioned without causing pollution the site will be returned to a satisfactory condition	Fornax complies with this appropriate measure. Fornax maintains a decommissioning plan to demonstrate that it ensures that the plant will be decommissioned without causing pollution and that the site will be returned to a satisfactory condition.
4	Your decommissioning plan should include details on: whether you will remove or flush out pipelines and vessels (where appropriate) and how you will empty them of any potentially harmful contents site plans showing the location of all underground pipes and vessels the method and resources needed to clear any on-site lagoons the method for closing any on-site landfills	Fornax complies with this appropriate measure. Fornax maintains a decommissioning plan to demonstrate that it ensures that the plant will be decommissioned without causing pollution and that the site will be returned to a satisfactory condition.



	how asbestos or other potentially harmful materials will be removed, unless we have agreed it is reasonable to leave such liabilities to future owners methods for dismantling buildings and other structures, and for protecting surface water and groundwater during construction or demolition at your site any soil testing needed to check for pollution caused by site activities, and information on any remediation needed to return the site to a satisfactory state when you stop activities, as defined by the initial site condition report the measures proposed, once activities have definitively stopped, to avoid any pollution risk and to return the site of operation to a satisfactory state (including, where appropriate, measures relating to the design and construction of the plant) the clearing of deposited residues, waste and any contamination resulting from the waste treatment activities	
5	You should make sure that equipment taken out of use is decontaminated and removed from the site.	Fornax complies with this appropriate measure. Fornax maintains a decommissioning plan to demonstrate that it ensures that the plant will be decommissioned without causing pollution and that the site will be returned to a satisfactory condition. This includes decontamination and removal where appropriate.

Table 17: Waste pre-acceptance

1	You must implement waste pre-acceptance procedures so that you know enough about a waste (including its composition) before it arrives at your facility. You need to do this to assess and confirm the waste is technically and legally suitable for your facility. Your procedures must follow a risk-based approach, considering: - the source and nature of the waste - its hazardous properties - potential risks to process safety, occupational safety and the	Fornax complies with this requirement. The site will request information regarding the composition of the waste from the waste producer/holder and the categorisation of the waste. The customer will provide the information on a waste declaration form along with supporting information such as analysis. The waste categorisation will be technically checked (by (HNC in Chemistry as a minimum qualification) to ensure the waste has been appropriately declared. The site will ensure that the waste is suitable for acceptance of the waste type and quantity. This is detailed at length in Clinical Waste Pre Acceptance SOP (FPO003) and Hazardous Waste Pre-Acceptance Work Instruction (FPL004).
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	environment (for example, from odour and other emissions) • knowledge about the previous waste holder	Fornax complies with this by using the TEGOS and electronic document waste tracking systems. It is a digital system and inventory to track the location and quantity of waste in the plant. It holds all the information generated during waste pre-acceptance procedures (e.g. date of arrival at the plant and unique reference number of the waste, information on the previous waste holder(s), pre-acceptance and acceptance analysis results, intended treatment route, nature and quantity of the waste held on site including all identified hazards), acceptance, storage, treatment and/or transfer off site. The waste tracking system is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). The waste producers facility audits will be assessed prior to waste acceptance. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u>
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		When a new waste consignment is booked: Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
2	When you receive a customer query, and before the waste arrives at your facility, you must obtain the following in writing or in an electronic form: - details of the waste producer including their organisation name, address and contact details - the source of the waste (the producer's business and the specific process that has created the waste) - where the holder of the waste is not the producer, details of the waste holder including their organisation name, address and contact details - information on the nature and variability of the waste production process and the waste You must also obtain (in writing or electronic form) details about the waste including: - a description - the List of Waste code (European Waste Classification (EWC) code) - its physical form - its composition (based on safety data sheets, where appropriate, or representative samples and robust laboratory analysis) - any hazardous properties - any persistent organic pollutants (POPs) present - the potential for self-heating, self-reactivity or reactivity to moisture or air - any odour	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction. An extract from that work instruction is below: - For every waste which will be quoted / accepted on to site, the following must be obtained in writing or electronic form about the customer. This will be added to the Tegos computer system. - Details of the waste producer including their organisation name, address, and contact details. - The source of the waste (the producer's business and the specific process that has created the waste). - Where the holder of the waste is not the producer, details of the waste holder including their organisation name, address, and contact details. - Information on the nature and variability of the waste production process and the waste. - For every waste which will be quoted / accepted on to site, the following must be obtained in writing or electronic form about the waste. This will be added to the Tegos computer system. - Its description. - The List of Waste code (European Waste Classification (EWC) code). - Its physical form. - Its composition (based on safety data sheets, where appropriate, or representative samples and robust laboratory analysis). - Any hazardous properties. - Any persistent organic pollutants (POPs) present. - The potential for self-heating, self-reactivity or reactivity to moisture or air. - Any odour.



	- its age, that is when it first became waste - the type of packaging - an estimate of the quantity you expect to receive in each load and in a year You must also obtain confirmation that the waste does not contain a radioactive source. If there is a risk of radioactive contamination you must obtain confirmation that the waste is not radioactive, unless your facility is permitted to accept such waste.	i. Its age, that is when it first became waste. j. The type of packaging. k. An estimate of the quantity you expect to receive in each load and in a year.
	3. You must consider whether specific wastes, from among those you are permitted to receive, have properties that can pose unacceptable risks to the site or process, for example due to: - a risk of explosion (for example, if ammunition or aerosol canisters are present, or mixing processes that could lead to explosion) - corrosion caused by strong acids - a risk of uncontrolled reactions (for example, if peroxides or strong oxidants are present, or polymerising components such as certain isocyanates) - a risk of the evolution of gases (for example if cyanides, sulphides or dissolved gas are present) You should establish a list of such wastes.	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction. Fornax complies by operating a formal waste pre-acceptance procedure that identifies and assesses wastes with properties that could pose unacceptable risks to the site or treatment process before acceptance. Each waste stream is fully characterised using producer information, Safety Data Sheets, process knowledge and, where necessary, sampling and analysis. The assessment specifically considers risks associated with explosion, corrosion, uncontrolled or runaway reactions, and the evolution of hazardous gases. Where information is incomplete or uncertainty exists, additional verification is required. Wastes presenting unacceptable risk are not accepted. Fornax has established and maintains a list of waste types requiring enhanced assessment at pre-acceptance, including: - Explosion risk - Corrosion risk: - Uncontrolled reaction risk: - Gas evolution risk: Only wastes that can be safely and compliantly managed are approved for acceptance.
4	You can verify the pre-acceptance information by contacting or visiting the producer. Dealing with staff directly involved in waste production will help to fully characterise a waste.	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction. Fornax complies by verifying waste pre-acceptance information through direct engagement with the waste producer where this is necessary to fully characterise the waste.



		This verification may include direct contact with staff. Only wastes that have been satisfactorily verified through this process are approved for acceptance.
5	You must obtain and analyse a representative sample of a waste if: - the chemical composition or variability of the waste is unclear from the information supplied by the customer - there are doubts about whether the sample analysed is representative of the waste - you will treat the waste at your facility (this allows you to carry out tests to determine if the planned treatment will be safe and effective) Where you rely on a customer sample you must record that you have done this and the reason why the customer sample is acceptable.	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction. Fornax complies by obtaining and analysing a representative sample of a waste where the chemical composition or variability is unclear from the information supplied by the customer, where there are doubts about the representativeness of existing samples, or where the waste will be treated at the facility to confirm that treatment will be safe and effective. Sampling and analysis are used to verify key physical and chemical characteristics relevant to storage, handling and treatment. Where uncertainty remains following review of documentation, additional sampling or testing is required prior to approval. Where Fornax relies on a sample provided by the customer, this is formally recorded, together with the justification for accepting the customer sample as representative of the waste. Only wastes that have been satisfactorily characterised through this process are approved for acceptance.
6	You may not need a representative sample where, for example, the waste is: - asbestos - a pure product chemical or aerosol where the chemical composition and hazardous properties are available in a REACH compliant safety data sheet - packaged cosmetics and pharmaceuticals - contaminated clothing, packaging or rags - an 'article', for example batteries, lighting tubes, waste electrical or electronic equipment, end-of-life vehicles or parts of vehicles, metal waste and scrap metal	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction. Fornax complies by applying a risk-based waste pre-acceptance procedure within its Integrated Management System to determine when a representative sample is not required, based on waste type, physical form, stability and the availability of reliable characterisation information. Representative sample is required for all waste will be quoted / accepted on to site except exemptions. Where the sampling is not performed, the reason for the not sampling must be recorded in the Tegos system. The Waste Acceptance Technician or Technical Manager can sample exempt waste at their discretion. Exemptions include: - Asbestos. - A pure product chemical or aerosol where the chemical composition and hazardous properties are available in a REACH compliant safety data sheet.



	• solid non-hazardous waste (except for mirror entries when the waste composition is unknown) • contaminated wood and roofing material • produced in an emergency – you must not treat or offload such wastes until you have completed a full characterisation 6.1 You also may not need a representative sample if the waste is laboratory smalls in containers of less than 5 litres. Laboratory smalls generally contain pure chemical elements and compounds from laboratories or arise when laboratory stores are cleared. When drums are used for laboratory smalls, a list of the contents must be stored within the drum below the lid, or attached to the drum. Similarly for other types of packages containing laboratory smalls, a list of contents is appropriately stored within (or attached to) the packaging. Each packed drum (or other package) is then labelled with the hazard for carriage, for example under the International Carriage of Dangerous Goods by Road (ADR) treaty. You should provide packaging guidance to your customer or their intermediary if the person packing the laboratory smalls does not work for you. 6.2 You also may not need a representative sample of waste oil for treatment. Pre acceptance sampling is not critical for a waste oil treatment plant, but it would be required if the waste will be treated at a mineral oil refinery. Typically waste oil comes from a large number of small volume sources, such as garages, but its composition is essentially fixed. Waste oil is any mineral-based or synthetic lubrication, or industrial oil which has become unfit for its original use. Waste oil includes: • used combustion engine oils • gearbox oils	• Packaged cosmetics and pharmaceuticals. • Contaminated clothing, packaging, or rags. • An 'article', for example batteries, lighting tubes, waste electrical or electronic equipment, end-of-life vehicles or parts of vehicles, metal waste and scrap metal. • Solid non-hazardous waste (except for mirror entries when the waste composition is unknown) • Contaminated wood and roofing material. • Produced in an emergency – you must not treat or offload such wastes until you have completed a full characterisation. • Laboratory smalls where the containers are of 5 litres or less
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	• mineral lubricating oils • oils for turbines • hydraulic oils Waste oil contaminated with more than 50 ppm of polychlorinated biphenyls (PCBs) is not included as a waste oil. 6.3 You should obtain a representative sample of the following types of waste oil, from: • industrial sites that do not normally produce waste oil • other sources where chemicals and potential contaminants may be handled, for example from chemical manufacturing You should advise your customers that they must avoid contaminating waste oil. This is because during treatment low flashpoint solvents or petrol will cause handling difficulties, increase volatile organic compound (VOC) emissions and increase the risk of accidents. Contamination with PCBs can transfer those PCBs either to the: • product (which may cause dioxin formation if used in a subsequent combustion process) • tank bottom oil sludges • effluent If you suspect that waste oil has become contaminated, for example by solvents, petrol or PCBs, you must identify the contamination. 6.4 If you do not take a pre-acceptance sample of any hazardous waste you must record the reason. 6.5 If the customer has a number of containers holding the same waste, you can apply 'the square root of (N) + 1' rule to sampling those containers. Producing a composite sample of this waste may be appropriate. If the waste is variable you will need a sample from each container.	
7	After fully characterising a waste, you must technically assess the waste's suitability for treatment or storage to make sure you can meet permit conditions. You must also do this to meet	Fornax complies with this appropriate measure. It is detailed in the Hazardous Waste pre-acceptance work instruction.



	any Control of Major Accident Hazards (COMAH) requirements, because wastes, raw materials and end-of-waste materials all contribute to COMAH limits. You must make sure that the waste complies with the site's treatment capabilities. In the case of water based liquid waste, you may perform laboratory scale tests to predict the treatment's performance, for example on breaking of emulsion or biodegradability.	The stock levels are managed to ensure that the Fornax remain under all COMAH threshold using electronic waste tracking software or electronic documents. Fornax complies by carrying out a formal technical assessment of each waste stream following full characterisation to confirm its suitability for storage and treatment and to ensure compliance with permit conditions. The assessment confirms that the waste is compatible with the site's treatment capabilities, storage arrangements and operating limits. It also considers the contribution of wastes, raw materials and treated materials to overall hazardous substance inventories to ensure that Control of Major Accident Hazards (COMAH) thresholds are not exceeded. Where water-based liquid wastes are proposed for treatment, Fornax may undertake laboratory-scale testing to assess treatment performance, such as emulsion breaking or biodegradability. Only wastes that pass this technical assessment are approved for acceptance.
8	You can use material flow analysis to help identify the flow and fate of the components in the waste. This analysis can be helpful in choosing the most appropriate forms of treatment for the waste, either directly at the site or at any subsequent treatment site.	Owing to the design of the Fornax facility, it is not envisaged that material flow analysis will be required. Therefore, this appropriate measure is not applicable.
9	You must keep pre-acceptance records for at least 3 years (in a computerised waste tracking system) following receipt of the waste. If an enquiry from a waste producer does not lead to the receipt of waste, you do not need to keep records.	Fornax complies by retaining all waste pre-acceptance records for a minimum of 3 years following receipt of the waste, within a computerised waste tracking system (Tegos). Where an enquiry from a waste producer does not result in waste being received at the site, Fornax does not retain pre-acceptance records.
10	You must reassess the information required at pre-acceptance if the: • waste changes • process giving rise to the waste changes • waste received does not conform to the pre-acceptance information In all cases, you must reassess the information required at pre-acceptance on an annual basis.	Fornax complies by re-assessing pre-acceptance information whenever there is a change to the waste, a change to the process giving rise to the waste, or where waste received does not conform to the approved pre-acceptance information. Where any non-conformance is identified at acceptance, the waste is reviewed, and pre-acceptance information is updated or the waste rejected as appropriate. In all cases, Fornax carries out an annual review and re-assessment of pre-acceptance information for each waste stream to ensure that characterisation remains



		accurate and that the waste continues to comply with permit conditions and site capabilities.
11	You must apply odour criteria to decide whether to accept wastes that are already releasing, or have the potential to release: • mercaptans or other VOCs • low molecular weight amines • acrylates • other similarly highly odorous materials These substances are only suitable for acceptance under special handling requirements.	Fornax complies with this requirement. As part of waste characterisation and technical assessment, Fornax assesses the presence and odour potential of substances such as mercaptans or other volatile organic compounds (VOCs), low molecular weight amines, acrylates, and other similarly highly odorous materials. Wastes identified as having significant odour potential are only accepted where they can be managed under special handling requirements, including appropriate packaging, segregation, controlled storage times and odour control measures. Where odour risks cannot be adequately controlled, the waste is rejected. This approach ensures that odour impacts are prevented and permit conditions are met.
12	You must keep the roles and responsibilities of sales staff and technical staff separate. If sales staff are involved in waste enquiries then technical staff must do a final technical check before approval. You must keep this final technical check independent of commercial considerations, to make sure you: • only accept wastes that are suitable for the site • avoid accumulating waste • have enough storage and treatment capacity	Fornax complies by maintaining a clear separation between commercial (sales) activities and technical decision-making within the waste pre-acceptance process.
13	Fully characterising the waste's composition is an essential step in the pre-acceptance procedure because hazardous wastes can be very complex. You must be sure you know what is in the waste so that you can safely handle or treat it. You must select analytical tests based on knowing the process that generates the waste. You must characterise the waste's composition at the pre-acceptance stage. You need to do this to make sure you comply with regulatory requirements and to work out the most appropriate waste storage, transfer or treatment route.	Fornax complies by fully characterising the composition of each waste stream at the pre-acceptance stage to ensure it can be safely handled, stored and treated. Waste characterisation is carried out by technically competent staff using information on the process that generates the waste, supported by producer documentation, Safety Data Sheets and, where required, sampling and analysis. Analytical tests are selected on a risk-based basis and are appropriate to the expected composition and variability of the waste. This characterisation ensures compliance with regulatory requirements and enables Fornax to determine the most appropriate waste storage, transfer or treatment route. Only



		wastes that have been satisfactorily characterised are approved for acceptance.
	14. For liquid waste, any or all of the following may be appropriate: • measure the density of the sample • measure the water content • measure the ash content after calcination at 550°C • test whether the stream might inhibit biological treatment • test for cyanide, and if present determine the free and complexed cyanide levels • test for POPs • check the content of volatile and semi volatile substances • check the mass balance of liquid waste You can also measure the pH, redox potential and electrical conductivity of liquid wastes. For pastes and oils, perform these measurements on a water extract of crude sample using a ratio of 10 l/kg of dry matter. You should mix the water with the sample in a closed container to limit exchanges with the atmosphere. You can also test for the 12 heavy metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) and determine their levels individually and quantitatively. You may use any specific classical method of (partial) extraction of these metals. Where it is present, check specifically for chromium (VI). If the waste is saline (conductivity > 0.15 S/m), measure the chlorides and preferably all the halogens that are soluble in water to make sure you correctly speciate the metals. You can also test for other metal content and other elements (for example silicon, sulphur and phosphorous).	Fornax complies by carrying out appropriate analytical testing of liquid wastes at the pre-acceptance stage to fully characterise their composition and confirm suitability for storage and treatment. Based on knowledge of the process that generates the waste and its expected composition, testing using a suite of tests will be used at the discretion of the Site Chemist based on a risk based approach, knowledge of the waste and the waste supplier.
15	If you suspect the analysis methods applied to a liquid sample will not extract and quantify the compounds present in any solid particles or in any separate phases, separate the sample into 2	Fornax complies by separating liquid waste samples into appropriate fractions where there is reason to believe that the applied analytical methods will not adequately extract or quantify compounds present in solid particles or separate phases.



	fractions by a suitable method. For example, this could be by filtration, centrifugation or decantation. Then you can determine the mass of each fraction, and perform a comprehensive analysis of the separated liquid fraction and solid fraction, or of each phase.	Where required, the sample is separated into two fractions using a suitable method such as filtration, centrifugation or decantation. The mass of each fraction is determined, and a comprehensive analysis is then carried out on the separated liquid and solid fractions, or on each individual phase, to ensure accurate characterisation of the waste. This approach ensures that all relevant components of the waste are identified and quantified, supporting safe handling, appropriate treatment selection and compliance with permit conditions.
16	For solid waste, any or all of the following may be appropriate: • measure the bulk density of the sample, without pre-treatment of the sample • measure the water content • measure the ash content after calcination at 550°C • test for cyanide, and if present determine the free and complexed cyanide levels • test for POPs • check the content of volatile and semi volatile substances • check the mass balance of solid waste You can also measure the pH, redox potential and electrical conductivity on a water extract of crude sample using a ratio of 10 l/kg of dry matter. You can also test for the 12 heavy metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) and determine their levels individually and quantitatively. You may use any specific classical method of (partial) extraction of these metals. Where it is present, check specifically for chromium (VI). If the waste is saline (conductivity > 0.15 S/m), measure the chlorides and preferably all the halogens to make sure you correctly speciate the metals. You can also test for other metal content and other elements (for example silicon, sulphur and phosphorous).	Fornax complies by carrying out appropriate analytical testing of solid wastes at the pre-acceptance stage to fully characterise their composition and confirm suitability for storage and treatment. Based on knowledge of the process that generates the waste and its expected composition, testing using a suite of tests will be used at the discretion of the Site Chemist based on a risk-based approach, knowledge of the waste and the waste supplier.



17	When multiple immiscible phases or fractions are present in a waste, you can perform the analysis on each phase and combine them to provide the final result.	Fornax complies by analysing wastes containing multiple immiscible phases or fractions by carrying out analytical testing on each phase separately. Where separate liquid and solid phases, or multiple immiscible liquid phases, are present, each phase is analysed individually. The results are then combined to provide a representative overall characterisation of the waste stream. This approach ensures that all components of the waste are accurately identified and quantified, supporting safe handling, appropriate treatment selection and compliance with permit conditions.
18	Analyses must be carried out by laboratories that have robust quality assurance procedures and use recognised test methods. The EN ISO 17025 accreditation represents best practice.	Fornax complies with this appropriate measure by having robust quality assurance procedures (in accordance with ISO9001) and use recognised test methods.
19	When you agree that you will accept waste from a customer, you should decide and record what parameters you will check at the acceptance stage. The checks could be visual (for example colour, phase, fuming), physical (for example pumpability, form), chemical (for example pH range, maximum acceptable metals content) or odour-based parameters. You should define the acceptable tolerance for each acceptance test result and record which of these criteria could lead to further testing, non-conformance or rejection. The person checking the waste for acceptance can also decide on their own additional parameters.	Fornax complies by defining and recording, at the point of agreeing acceptance with a customer, the parameters that will be checked at the waste acceptance stage. Acceptance checks are risk-based and may include visual parameters (such as colour, phase separation, fuming or presence of solids), physical parameters (such as form, pumpability or container integrity), chemical parameters (such as pH range, flashpoint or maximum acceptable contaminant levels), and odour-based parameters where relevant. For each parameter, acceptable tolerance limits are defined as part of the pre-acceptance and technical assessment process. These limits determine whether the waste can be accepted as compliant, requires further testing, is treated as a non-conformance, or is rejected. All acceptance criteria and outcomes are recorded. The competent person carrying out acceptance checks is authorised to apply additional parameters where necessary, based on observations at receipt and professional judgement, to ensure that only wastes suitable for the site are accepted and managed safely.

Table 18: Waste Acceptance

1	You must follow waste acceptance procedures to check that the	Fornax complies with this requirement. Fornax has waste acceptance procedures in place for receiving all waste.
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	characteristics of the waste you receive match your pre-acceptance information. This is to confirm that the waste is as expected and you can accept it. If it is not, you must confirm that you can accept it as a non-conforming waste, or you must reject it.	
2	Your procedures should follow a risk-based approach, considering: - the source, nature and age of the waste - the waste's hazardous properties - potential risks to process safety, occupational safety and the environment (for example, from odour and other emissions) - potential for self-heating, self-reactivity or reactivity to moisture or air - knowledge about the previous waste holder(s)	Fornax complies by applying a risk-based waste acceptance process that assesses the source, nature and age of each waste stream, its hazardous properties, and the knowledge available from previous waste holders. This assessment evaluates potential risks to process integrity, occupational safety and the environment, including emissions and odour, and considers the potential for self-heating, self-reactivity or reactivity with air or moisture. Only wastes demonstrated to be compatible with the facility's design, operating conditions and permit controls are accepted.
3	Other than in an emergency (for example, taking waste from an emergency incident clean-up), you must only receive pre-booked wastes onto site that have been adequately pre-accepted and are consistent with the pre-acceptance information.	Fornax complies by operating a risk-based waste acceptance and booking system under which, except in emergency situations, only pre-booked wastes that have been adequately pre-accepted and verified as consistent with the pre-acceptance information are received on site. This process considers the source, nature and age of the waste, its hazardous properties, information from previous waste holders, and the potential risks to process safety, occupational safety and the environment, including emissions, odour, self-heating, self-reactivity, or reactivity with air or moisture. Only wastes confirmed as compatible with the facility design, operating conditions and permit controls are accepted.
4	All relevant storage areas (quarantine, reception and general) and treatment processes in your facility must have physical capacity for the waste you receive. You must not receive wastes if this capacity is not available. The amount of waste you receive must also comply with storage limits in your permit and the limits set under COMAH.	Fornax complies by ensuring that all waste received can be safely accommodated within the physical capacity of designated reception, quarantine, general storage and treatment areas. Waste is not accepted where sufficient capacity is unavailable, and all quantities received are controlled to remain within the storage limits set out in the environmental permit and the applicable COMAH thresholds.
5	You must visually check wastes or their packaging and verify them against pre-	Fornax complies by visually inspecting wastes or their packaging on receipt and verifying them against



	acceptance information and transfer documentation before you accept them on site. The extent of the initial visual check is determined by the waste type and how it is packaged.	pre-acceptance information and transfer documentation, with the extent of checks determined by the waste type and its packaging before acceptance onto site.
6	You must check and validate all transfer documentation and resolve discrepancies before you accept the waste. If you believe the incoming waste classification and description is incorrect or incomplete, then you must address this with the customer during waste acceptance. You must record any non-conformances. If you have assessed the waste as acceptable for on-site storage or treatment, you must document this.	Fornax complies by checking and validating all waste transfer documentation prior to acceptance, resolving any discrepancies with the customer, addressing incorrect or incomplete waste classifications or descriptions during acceptance, recording all non-conformances, and documenting confirmation where the waste has been assessed as acceptable for on-site storage or treatment.
7	You must have clear criteria for non-conforming wastes including rejection of such waste. You must also have a written procedure for recording, reporting and tracking non-conforming wastes, including notifying the relevant customer or waste producer, and the regulator.	Fornax complies by maintaining clear criteria for identifying and rejecting non-conforming wastes, supported by a written procedure for recording, reporting and tracking non-conformances, including notification to the relevant customer or waste producer and the regulator where required.
8	You must weigh each load of waste on arrival to confirm the quantities against the accompanying paperwork, unless alternative reliable systems are available (for example, based upon density and volume). You must record the weight in the computerised waste tracking system.	Fornax complies by weighing each load of waste on arrival to verify quantities against the accompanying documentation, or using an alternative reliable system where justified, and recording the confirmed weight within the computerised waste tracking system.
9	The person carrying out waste acceptance checks must be trained to effectively identify and manage any non-conformances in the loads received, complying with this guidance and your permit conditions.	Fornax complies by ensuring that personnel undertaking waste acceptance checks are appropriately trained and competent to identify, manage and record any non-conformances in received loads, in accordance with permit conditions and applicable guidance.
10	If there is a known risk of radioactive contamination, you must check the waste to determine that it does not include radioactive material, unless you are permitted to accept these materials.	Fornax complies by recognising that the risk of radioactive contamination within accepted waste streams is demonstrably low and therefore does not warrant routine radioactive screening, with acceptance limited to wastes permitted under the environmental permit and excluding radioactive materials.
11	You must minimise the manual handling of waste. You should use mechanical	Fornax complies by minimising manual handling of waste through the use of mechanical unloading and handling



	unloading technologies where it is possible, safe and practicable to do so.	equipment wherever it is reasonably practicable, safe and suitable to do so, thereby reducing risks to occupational safety.
12	Offloading, sampling, general storage, reception and quarantine areas must have an impermeable surface with self-contained drainage, to prevent any spillage entering the storage systems or escaping off site.	Fornax complies by providing impermeable surfaces with self-contained drainage in all offloading, sampling, reception, quarantine and storage areas, ensuring that any spillages are fully contained and cannot enter storage systems or escape off site.
13	The designated sampling point or reception area must be close to the laboratory or checking area and needs to be visible.	Fornax complies by locating the designated sampling or reception area in close proximity to the laboratory or checking area, with clear visibility to support effective oversight and control during waste acceptance activities.
14	After you have completed the initial visual inspection and confirmatory checks, you must offload waste containers into a dedicated reception area to await detailed checks or sampling. Wastes that do not require further checking can go directly into the appropriate storage area. You must not unload wastes if you do not have enough space.	Fornax complies by offloading wastes into a dedicated reception area following initial visual inspection and confirmatory checks, pending any required detailed checks or sampling, with wastes not requiring further checks transferred directly to appropriate storage areas, and ensuring that wastes are not unloaded unless sufficient space is available.
15	All waste containers must be fit for purpose, and, where appropriate, be: • in sound condition • undamaged • not corroded, if metal • have well-fitting lids • suitable for the contents • with caps, valves and bungs in place and secure You must risk assess containers, particularly those made of plastic, if they have exceeded the manufacturer's use by date. You must quarantine non-conforming containers and deal with them immediately and appropriately. You must record all non-conformances.	Fornax complies by ensuring all waste containers are fit for purpose and suitable for their contents, are in sound and undamaged condition with secure lids, caps, valves and bungs, and are not excessively corroded where metal, with container suitability risk-assessed, particularly for plastics beyond manufacturer use-by dates. Non-conforming containers are immediately quarantined and managed appropriately, with all non-conformances recorded.
16	You must check, and where appropriate sample and analyse, the contents of all containers in the reception area within one working day of receipt. You must	Fornax complies by checking, and where necessary sampling and analysing, the contents of all containers held within the reception area within one working day of receipt and



	then transfer compliant containers to the relevant appropriate storage area on site.	transferring compliant containers to the appropriate on-site storage area once acceptance is confirmed.
17	You must move non-compliant containers to a dedicated quarantine area unless you can safely store the waste in a general storage area with other compatible wastes whilst you investigate the non-conformance. You must label non-compliant containers to identify that they are quarantined. You must record the non-conformance and where the waste is stored. If you use a dedicated quarantine area, you must segregate or isolate incompatible wastes. You must contain and abate wastes which are quarantined due to odour.	Fornax complies by moving non-compliant containers to a dedicated quarantine areas. Incompatible wastes are segregated or isolated, and any wastes quarantined due to odour are appropriately contained and abated.
18	Quarantine storage must be for a maximum of 5 working days. You must have written procedures for dealing with wastes you hold in quarantine, and a maximum storage volume. For some limited and specific cases (for example the detection of radioactivity), you can extend quarantine storage time if the Environment Agency agrees.	Fornax complies by limiting quarantine storage to a maximum of five working days, operating in accordance with written procedures.
19	Where containers hold laboratory smalls, you must open each container held in reception within one working day of receipt to check that the contents remain undamaged and that the inventory is as expected. All of the contents in each drum must be compatible. Once checked the container can be moved to the appropriate storage area. Laboratory smalls that need to be sorted must be moved to a dedicated repackaging area and repackaged immediately.	Fornax complies by opening each container of laboratory smalls held in reception within one working day of receipt to verify that contents are undamaged, the inventory matches expectations, and all items within each drum are compatible, before transferring compliant containers to the appropriate storage area, with any laboratory smalls requiring sorting moved immediately to a dedicated repackaging area for prompt repackaging.
20	You must make sure that all waste packages you receive are marked or labelled with: - a description of the waste that also gives its chemical identity and composition - a unique tracking system reference	Fornax complies by ensuring that all waste packages received are clearly labelled with an accurate waste description including chemical identity and composition, a unique tracking reference, the date of arrival on site, and the appropriate hazard code(s), enabling full traceability of the waste and clear identification of the waste producer.



	- the date of arrival on site - a hazard code or codes (using a product or transport symbol) The unique reference must allow you to track the waste and easily identify the producer of the waste.	
21	If waste containers are received shrink-wrapped on pallets, or you shrink-wrap containers, you can label the shrink wrap with all the relevant information. If a shrink-wrapped load is split, you must make sure you mark or label each individual container with all the relevant information.	When labelling shrink-wrapped pallets all required waste information is labelled with the full set of relevant information. However this is not applicable when the shrink wrapping is split, in this case the individual containers are labelled.
22	Where bar code systems are used for labelling, the hazardous property of the waste and the date of receipt of the container must be directly visible.	Fornax complies using a barcoding labelling systems. The labels also include the hazardous properties of the waste and the date of receipt which are clearly and directly visible on the container.
23	You should, wherever possible, keep wastes segregated in reception, to minimise the risk of incompatible materials reacting together.	Fornax complies by segregating wastes within the reception area wherever practicable to minimise the risk of reactions between incompatible materials.
24	Bulk loads (liquid or solid) can only be offloaded after they have been fully verified as compliant. You must not accept a non-compliant bulk load for interim storage except in an emergency. Verification testing should include: - checking consistency with the pre-acceptance information - compatibility with the receiving vessel contents - where appropriate, checking treatability by using laboratory scale simulation	Not applicable. Fornax will not be receiving bulk loads therefore this appropriate measure is not applicable.
25	Deliveries in a tanker must be accompanied by a 'wash out' certificate or a declaration of the previous load so that contamination by this route can be checked.	Not applicable. Fornax will not be receiving waste via tanker deliveries and therefore this appropriate measure is not applicable.
26	Samples from tankers should wherever possible be taken representatively by taking a core sample from the top hatch	Not applicable. Fornax will not be receiving waste via tanker deliveries and therefore this appropriate measure is not applicable.



	and from a suitable gantry. You must sample from each compartment where the tanker is divided into multiple compartments. If you have to take a sample from the back valve, you must take precautions to avoid spillages.	
27	You must representatively sample all wastes, bulk or containerised (including from every container) at the acceptance stage, and carry out verification and compliance testing. You must not just rely on the written information supplied. The requirement to sample does not apply to some wastes, for example: • pure product chemicals • asbestos • contaminated clothing, packaging or rags • 'articles' • laboratory smalls • packaged cosmetics and pharmaceuticals • solid non-hazardous waste (except for mirror entries when the waste composition is unknown) • contaminated wood and roofing material • waste received directly from a householder • green wastes and food wastes Where a sample is not required, you must still visually check the waste is as expected and that no contrary materials are present. You must record the reason why you did not sample the waste in your computerised waste tracking system. You must empty and repack containers of contaminated clothing, packaging or rags to check for items that should not be there. You must obtain a representative sample and analyse waste oil, from: • industrial sites that do not normally produce waste oil • other sources where chemicals and potential contaminants may	Fornax complies by carrying out representative sampling, verification and compliance testing of all wastes at the acceptance stage rather than relying solely on written information, with sampling exemptions applied only to specified waste types and supported by visual inspection and recorded justification within the computerised waste tracking system. Fornax holds a waste sampling procedure for this activity FPL005 Hazardous Waste Sampling.



	be handled, for example from chemical manufacturing For other waste oil you must obtain a representative sample of the waste but you do not have to analyse it unless a problem is found at the treatment plant.	
28	A representative sample is one that takes account of the full variation and any partitioning of the load so you can account for worst case scenarios.	Fornax complies by ensuring that representative samples reflect the full variation and any partitioning of the waste load, enabling assessment of worst-case scenarios during acceptance, verification and compliance testing. This is detailed in FPL005 Hazardous Waste Sampling.
29	You must take a sample from every container. You can make a composite sample if each of the containers making up the composite holds the same waste and the waste is known not to be variable. You must obtain a representative sample by taking a core sample down to the base of the container. You must make sure you replace lids, bungs and valves immediately after sampling.	Fornax complies by requiring that every container of incoming waste is sampled at the waste acceptance stage by trained personnel, with samples taken to be representative of the full contents, including core sampling to the base of the container where practicable. Where multiple containers hold the same waste and the waste is known not to be variable, Fornax may produce a composite sample; if variability is suspected, each container is sampled individually. All lids, bungs, caps and valves are immediately replaced and secured following sampling, and container integrity is checked before the waste is moved to storage, quarantine or treatment, in accordance with Fornax Waste Acceptance and Sampling procedures.
30	On-site sampling must take place under the supervision of the site's qualified staff. Where a driver arrives at the site with a sample taken elsewhere, the sample: • must be verified as representative, reliable and obtained by a person technically competent to take it • is only acceptable if it was taken for specific health or safety purposes	Fornax complies by ensuring that all on-site sampling is carried out under the supervision of qualified and trained site staff as part of the Waste Acceptance process. Where a driver arrives with a sample taken off-site, Fornax only accepts the sample if its representativeness and reliability can be verified and it is confirmed to have been taken by a technically competent person. Such off-site samples are only accepted where they were taken for specific health or safety purposes. Otherwise, representative sampling is undertaken on site under Fornax supervision prior to acceptance.
31	Sampling must not increase the risk of incompatible substances coming into contact with one another, for example within a sump serving the sampling point, or due to contaminated sampling equipment.	Fornax complies by carrying out waste sampling in a manner that prevents incompatible substances from coming into contact with one another. Sampling is undertaken using clean, appropriate and dedicated equipment, with controls in place to prevent cross-contamination between wastes. Sampling is conducted in a dedicated area.



32	You must have suitable absorbents and spill kit material available to deal with any spills.	Fornax complies by ensuring that suitable absorbents and spill response materials are readily available at waste reception and sampling areas, with spill kits maintained on site to enable the prompt and effective management of any spills arising during sampling or waste handling activities.
33	You must keep a record of the sampling regime, process and justification in your computerised waste tracking system.	Fornax complies by recording the sampling regime, sampling process and the justification for the sampling approach within its computerised waste tracking system, ensuring that sampling decisions, results and acceptance records are retained and auditable as part of the Waste Acceptance process.
34	You should keep acceptance samples on site for at least 2 working days after you have: • treated a waste and removed its treatment residues from the facility • transferred a waste from your site Where you are transferring waste oil from your site you must keep acceptance samples for at least 2 working days after the waste has been treated off site. You must analyse the waste oil sample if a problem is found at the off-site treatment plant. You only need to keep samples that you did not analyse at acceptance.	Fornax complies by retaining acceptance samples on site for a minimum of two working days after the waste has been treated and treatment residues removed, or after the waste has been transferred from the site. Where waste oil is transferred off site for treatment, acceptance samples are retained for at least two working days after off-site treatment has taken place. Waste oil samples are analysed if a problem is identified at the off-site treatment facility. Only acceptance samples that were not analysed at the time of acceptance are retained, in accordance with the Waste Acceptance and sampling arrangements.
35	You must have a sampling and analysis procedure. You must design it based on the risk factors for the waste, for example: • the type of waste (for example hazardous or non-hazardous) • knowledge of the customer (for example waste producer) • the impact of potential mixing or blending and the possibilities for subsequent treatment	Fornax complies by maintaining a documented sampling and analysis procedure detailed in FPL005 Hazardous Waste Sampling and FPL006 Hazardous Waste Acceptance that is designed using a risk-based approach. The procedure takes account of the type of waste (including whether it is hazardous or non-hazardous), knowledge and history of the waste producer, and the risks associated with potential mixing or blending, including impacts on safe handling and subsequent treatment. This risk-based approach is applied during pre-acceptance and acceptance to ensure appropriate sampling, testing and control measures are implemented for each waste stream.
36	You must check any relevant physico-chemical parameters using, for example, viscometry, infrared, chromatography and mass spectrometry.	Fornax complies by checking relevant physico-chemical parameters of incoming wastes during the Waste Acceptance process where applicable, using appropriate analytical techniques where required, including viscosity



		assessment, infrared analysis, chromatography and mass spectrometry, to verify waste characteristics and confirm suitability for acceptance and subsequent treatment. However this is not deemed to be a routine task.
37	Sampling procedures must be customised for: • bulk liquid • bulk solids • large and small containers or vessels (the number of samples increases with the number of containers or vessels and the variability of the waste) • laboratory smalls	Fornax complies by applying customised sampling procedures appropriate to the waste form and packaging, large and small containers or vessels, and laboratory smalls. The number and type of samples taken increases in line with the number of containers and the variability of the waste, ensuring that sampling remains representative and proportionate to risk. Bulk liquids and bulk solids will not be accepted onto site, thus a sampling procedure for these waste types are not deemed appropriate.
38	You must determine and record the following information: • the sampling regime for each load, together with your justification for selecting each option • where and how the sample was taken • the capacity of the sampled vessel (for samples from drums, an additional parameter would be the total number of drums) • the number of samples and degree of consolidation • the operating conditions at the time of sampling	Fornax complies by determining and recording the sampling regime selected for each load and the justification for that selection, together with details of where and how samples were taken, the capacity of the sampled vessel (and total number of containers where applicable), the number of samples taken and any consolidation applied, and the operating conditions at the time of sampling. This is described in FPL006 Hazardous Waste Acceptance.
39	Wherever possible you should sample waste in accordance with: • EN 14899 Characterization of waste. Sampling of waste materials. Framework for the preparation and application of a sampling plan • CEN/TR 15310-1 Characterization of waste. Sampling of waste materials. Guidance on the selection and application of criteria for sampling under various conditions	This appropriate measure is not applicable because Fornax is not required to be accredited laboratory. Fornax will comply with internal quality standards in accordance with ISO9001.



	• CEN/TR 15310-2 Characterization of waste. Sampling of waste materials. Guidance on sampling techniques • CEN/TR 15310-3 Characterization of waste. Sampling of waste materials. Guidance on procedures for sub-sampling in the field • CEN/TR 15310-4 Characterization of waste. Sampling of waste materials. Guidance on procedures for sample packaging, storage, preservation, transport and delivery • CEN/TR 15310-5 Characterization of waste. Sampling of waste materials. Guidance on the process of defining the sampling plan For more information see guidance on the classification and assessment of waste WM3.	
40	You must test each waste for acceptance according to the parameters decided at pre-acceptance, plus any appropriate additional checks. You should record the results of the tests in the computerised waste tracking system. You should note and investigate any discrepancies.	Fornax complies by testing each waste for acceptance against the parameters established at pre-acceptance, together with any additional checks identified as necessary at the acceptance stage. All test results are recorded within the computerised waste tracking system, and any discrepancies between pre-acceptance information, sampling results or observations are noted, investigated and resolved prior to acceptance or treatment.
41	Analysis of waste must be carried out by a laboratory with suitably recognised test methods. Where the waste received is hazardous, the laboratory should be on site, or routinely available at another site capable of providing test results within one working day of receipt of the waste at your site.	Fornax complies by ensuring that waste analysis is carried out using suitably recognised test methods, either by an on-site laboratory or by a routinely available external laboratory capable of providing results within one working day of waste receipt. Where hazardous waste is received, analytical capability is available to support timely acceptance decisions in accordance with Waste Acceptance requirements. Fornax will comply with internal quality standards in accordance with ISO9001.



Table 19: Waste tracking

1	You must use a computerised tracking system to hold up-to-date information about the available capacity of the waste quarantine, reception, general and bulk storage areas of your facility, including treatment residues and end-of-waste product materials.	Fornax complies with this requirement. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: • Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
2	Your waste tracking system must hold all the information generated during: • pre-acceptance • acceptance • non-conformance or rejection • storage • repackaging • treatment • removal off site	Fornax complies by using a digital waste tracking system (Tegos) that captures and retains all information generated across the full waste lifecycle, ensuring it is readily accessible for operational control and regulatory inspection. The system holds linked records for pre-acceptance, acceptance, non-conformance or rejection, storage, repackaging, treatment, and removal off site, maintaining consignment-, container- and lot-level traceability throughout.



	This information must be easily accessible.	It records movements between locations (including quarantine), repackaging activities while retaining links to original containers, treatment status, and final off-site removal. All records are stored electronically and can be retrieved without delay to support compliance, audit and inspection requirements.
3	You must create records and update them to reflect deliveries, on-site treatment and despatches. Your tracking system will also operate as a waste inventory and stock control system. It must include this information as a minimum: • the date the waste arrived on site • the original producer's details • the previous holder • a unique reference number • waste pre-acceptance and acceptance information • any analysis results • the package type and size • the intended treatment or transfer route • accurate records of the nature and quantity of wastes held on site, including all hazards – and identifying the primary hazards • where the waste is located on site • where the waste is in the designated treatment or transfer route • the names of staff who have taken any decisions about accepting or rejecting waste streams and who have decided on recovery or disposal options • details that link each container accepted to its consignment or transfer note • details of any non-conformances and rejections	Fornax complies by using its digital waste tracking system (Tegos) as a live waste inventory and stock control system, creating and updating records to reflect deliveries, on-site treatment and despatch/removal off site, with all information readily accessible. As a minimum, the system records and links: the date of arrival, original producer details, previous holder, a unique reference number, pre-acceptance and acceptance information, analysis results, package type and size, the intended treatment or transfer route, accurate nature and quantity of waste held on site including hazards and primary hazards, location on site, position within the treatment or transfer route, the names of staff making acceptance, rejection or recovery/disposal decisions, links between each container and its consignment or transfer note, and details of any non-conformances or rejections.
4	The tracking system must be able to report: • the total quantity of waste present on site at any one time	Fornax complies by using its digital waste tracking system (Tegos) as an active inventory and stock control tool capable of producing real-time reports to support operational management and permit compliance.



	• a breakdown by type of the waste quantities you are storing pending treatment or transfer • a breakdown of the waste quantities by hazardous property • an indication of where a batch or consignment of waste is located on a site plan • the quantity of waste on site compared with the limits authorised by your permit • the length of time the waste has been on site • the quantity of end-of-waste product materials on site at any one time, where applicable	The system can report the total quantity of waste on site at any one time, provide breakdowns by waste type and by hazardous property, and show where each batch or consignment is located on the site plan. It also records the quantity of waste held compared with permitted limits, the length of time each waste has been on site, and, where applicable, the quantity of end-of-waste product materials present. These reports are readily accessible and used to ensure storage, treatment and transfer activities remain within authorised limits.
5	You must store back-up copies of computer records off site. Records must be easily accessible in an emergency.	Fornax complies with this by using Tegos. Tegos is configured so that data is stored in a way that satisfies the offsite backup and emergency access requirement. Tegos is deployed on Microsoft Dynamics 365 Business Central, which automatically backs up the database to Microsoft's cloud infrastructure. Stores copies in geographically separate data centres (offsite).
6	You must hold acceptance records for a minimum of 2 years after you have treated the waste or removed it off site. You may have to keep some records for longer if they are required for other purposes, for example, hazardous waste consignment notes.	Fornax complies with this appropriate measure. Site records will be retained for a minimum of 2 years after site is treated or removed from site. Hazardous waste consignment notes will be retained for at least 6 years.



26.0 Waste Storage, segregation and handling appropriate measures

Table 20: Waste Storage, segregation and handling appropriate measures

15	You must not accumulate waste. You must treat wastes, or remove them from the site, as soon as possible. Generally you should do this within one month of receipt but all wastes must be removed within 6 months of receipt. This applies even when the waste might be used as a reactant. Where a shorter time period is given in a permit condition you must comply with the permit for that waste. Where a waste is stored for longer than allowed you must inform the Environment Agency.	Fornax complies with this requirement. Waste will be provided by suppliers at pre agreed weights and quantities to allow a steady feed to the kiln and to avoid stocks of waste being stored on site where possible. Waste will be incinerated on site. No treatment will be undertaken on site other than repackaging for movement or storage. Tegos tracks waste storage and treatment capacity in real time and can be set up to enforce pre-booking for waste, helping to ensure permits are not breached. <u>Available capacity</u> Storage areas (quarantine, reception, general, bulk) will be configured as locations/warehouses in Tegos or electronic document, with defined maximum capacity in terms of: • Number of bins/containers/pallets • Tonnage (for each waste type) • This will be held in the warehouse/location master and linked to the site's permit conditions. <u>Real-time tracking</u> The system will be configured to update occupancy in real time as: • Incoming waste is accepted (via weighbridge/POD) • Waste is moved between locations (e.g. to quarantine, then to general storage) • Waste is treated/despached Reports can then show current stock per area vs. maximum capacity, helping to avoid overfilling. <u>Pre-booking / capacity check</u> When a new waste consignment is booked: • Tegos will be interrogated to review the scheduled arrival date/time against available storage capacity and treatment-line availability. The system is configured so that booking is not allowed if there is insufficient space or process capacity for the expected waste type and quantity, or if the booking would breach a permit limit.
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22	You have stated that there will be gap of 0.7m between rows. Whereas your FPP states that there is a 3.3m separation distance between rows. Provide clarification.	Fornax complies with this requirement. Storage is designed to maintain safe access, with a gap of at least 0.7m between rows of bulk containers or palletised wastes. Racking is utilised for storage to allow easy access and the gap between the racking rows is approximately 3.3m to allow for FLT access between the rows.
28	All waste containers must remain fit for purpose. You must check any containers (and pallets they may be stored on) daily and record non-conformances. Non-compliant containers and pallets must be made safe. You must immediately and appropriately manage any unsound, poorly labelled or unlabelled containers (for example, by relabelling, over drumming and transferring the container's contents). You must risk assess, approve and record the use of containers, tanks and vessels: - beyond their specified design life - where you use them for a purpose, or substances, other than the ones they were designed for	Fornax will comply with this measure: All waste receptacles will be inspected daily for suitability and state of repair. If any repairs are required they will be taken out of service until a repair is facilitated.
31	You must store asbestos waste double bagged or wrapped, in sealed, closed and locked containers. You must not store asbestos waste loose. You must not put asbestos wastes into bays or transfer it between different skips or containers. You must not use mechanical equipment, for example loading shovels, chutes and conveyors to move asbestos waste.	Asbestos waste has been removed from the EWC Codes of acceptable waste. Therefore this appropriate measure is not applicable.
48	You must be able to close all connections to vessels, tanks and secondary containment via suitable valves. You must fit a valve close to the tank if you have bottom outlets, and have at least 2 isolation points in case of valve failure.	Fornax complies with this requirement. Fornax will not be storing any incoming waste in bulk tanks. Fornax holds one hazardous wastewater tank which is for wastewater generated on site. This bulk tank is compliant with CIRIA guidance.



27.0 Emissions Control Appropriate Measures

The following responses only relate directly the use of activated carbon odour abatement.

Table 21: Clarification on Point source emissions to air appropriate measures

1	You must contain storage tanks, silos and waste treatment plant (including shredders) to make sure you collect, extract and direct all process emissions to an appropriate abatement system for treatment before release.	Fornax will comply by firstly ensuring all activities are undertaken within a contained building. Extracted air from the warehouse will be directed to the carbon filter when the kiln is not in operation to maintain air movement and abatement of the warehouse air. The facility will use a carbon filter abatement system that is provided by a supplier in a container. The carbon media is contained within the container. If the carbon filter requires replacement the whole container containing the carbon is removed and a new unit connected. This prevents release to air via media exchanges.
2	You must identify the main chemical constituents of the site's point source emissions as part of the site's inventory of emissions to air.	Where activated carbon filtration abatement is used, it is assumed that the efficiency of contaminant removal is 100% upon commissioning. Thus, at this efficiency level, no emissions are expected. The efficiency of the filter will be measured during periodic air emissions monitoring, at which time we will be able to determine the emissions from the point source. This could be given as improvement condition within the permit to undertake an H1 emissions assessment upon commissioning of the facility. Fornax have a Site Conditioning Report containing stages 1-3 which identifies potential on site emission sources.
3	You must make an assessment of the fate and impact of the substances emitted to air, following the Environment Agency's air emissions risk assessment methodology.	Where activated carbon filtration abatement is used, it is assumed that the efficiency of contaminant removal is 100% upon commissioning. Thus, at this efficiency level, no emissions are expected. The efficiency of the filter will be measured during periodic air emissions monitoring, at which time we will be able to determine the emissions from the point source. Monitoring of the activated carbon unit will include total VOC, a Top 10 screen parameters, NH₃, H₂S, Oue. Monitoring is carried out at the inlet and the outlet of the activated carbon unit. Fornax have undertaken an air quality assessment OLCO.01.01_ADM and a Human Health Risk Assessment OLCO.01.01_HHRA



4	To reduce point source emissions to air (for example, dust, volatile organic compounds and odour) from the treatment of waste, you must use an appropriate combination of abatement techniques, including one or more of the following systems: • adsorption (for example, activated carbon) • biofiltration • wet scrubbing • fabric filters • high efficiency particulate (HEPA) filtration • condensation and cryogenic condensation • cyclonic separation • electrostatic precipitation • thermal oxidation	Fornax will comply: Section 6 of the original application pack contains a report titled Air Abatement Requirements Fornax utilise a combination of SNCR, Filter Bags and Adsorption via Activated Carbon.
5	You must assess and design vent and stack locations and heights to make sure dispersion capability is adequate. Where monitoring is required, including for odour, you must install suitable monitoring points.	Fornax comply with this requirement. Where activated carbon filtration abatement is used, it is assumed that the efficiency of contaminant removal is 100% upon commissioning. Thus, at this efficiency level, no emissions are expected. The unit does not have a stack attached to the vent. The efficiency of the filter will be measured during periodic air emissions monitoring, at which time we will be able to determine the emissions from the point source. Monitoring will be undertaken from inlet flange DN350 PN10 flange + blind flange and outlet vent.
6	Your procedures must make sure you correctly install, operate, monitor and maintain abatement equipment. For example, this includes monitoring and maintaining: • appropriate flow and chemical concentration of scrubber liquor • the handling and disposal or regeneration of spent scrubber or filter medium	Fornax comply with this requirement. The facility will use a carbon filter abatement system that is provided by a supplier in a container. The assessment for the sizing of the unit was completed by the manufacturer and considered the air flow and required retention time of the air in contact with the carbon media. The carbon media is contained within the container. If the carbon filter requires replacement the whole container containing the carbon is removed and a new unit connected This prevents release to air via media exchanges. When the unit is replaced the carbon in the unit that is removed is sent for regeneration.



Fugitive emissions to air

The following responses only relate directly the measures to control dust, mud and litter, and the use of a activated carbon odour abatement unit.

Table 22: Clarification on Fugitive emissions to air appropriate measures

1	You must use appropriate measures to prevent emissions of dust, mud and litter and odour.	Fornax complies with this requirement by firstly ensuring all activities are undertaken within a contained building. Extracted air from the warehouse will be directed to combustion air intake and will undergo combustion and abatement primarily. If the combustion process is not available then the extracted air from the warehouse will be diverted to a carbon filter for abatement via adsorption. The process is not deemed to produce dust to air as material provided in sealed packaging that is then placed directly in the hopper for incineration, however the abatement as direct air intake to the combustion system would mitigate dust. Dust within the carbon filter would be acceptable withing the pore spacing but again dust is not to be expected from the warehouse air intake from the high-level fan. The Bottom Ash is dampened before being transported via the enclosed ash conveyor and directed into a covered skip. No dust is expected from this process. There will be no litter from the facility as all activities are carried out inside a building. The waste management process will not produce mud and all floor surfaces are fully sealed concrete surfaces with sealed drainage.
15	You must monitor and maintain odour abatement systems to ensure optimum performance. For example, you should make sure that scrubber liquors are maintained at the correct pH and replenished or replaced at an appropriate frequency	Fornax complies with this requirement by undertaking monitoring of emissions from the stack and via monitoring of the efficiency of the carbon filter. Monitoring will be in accordance with Permit requirements. The odour abatement systems are maintained in accordance with the manufacturers requirements. The carbon filter is a plug in container containing carbon and when it requires changing it will be swapped over with a new unit. This will eliminate dust from having to empty carbon out.



The following responses only relate directly the discharge to sewer.

Table 23: Clarification on Point source emissions to water and sewer appropriate measures

1	You must identify the main chemical constituents of the site's point source emissions to water and sewer as part of the site's inventory of emissions.	Fornax comply as they have undertaken an assessment which is detailed in headings 1.0 and 2.0 in this document. There is no hazardous substance emissions to water or to sewer. In this assessment any chemical constituents have been identified.
2	You must assess the fate and impact of the substances emitted to water and sewer following the Environment Agency's risk assessment guidance.	Fornax complies with this requirement for Emissions to Water or Sewer. Fornax have undertaken an assessment which is detailed in headings 1.0 and 2.0 of this document above. This assessed the fate and impact of the substances emitted to water and sewer. The sewer discharge will meet BAT AEL's. The discharges to sewer will be in accordance with a Northumbria Water Consent to discharge. Emissions to water have been assessed as not being a risk. All site drainage is via a controlled sealed drainage system with penstock valves to allow shut off.
3	Discharges to water or sewer must comply with the conditions of an environmental permit or trade effluent consent. Relevant sources of waste water include: • water or condensate collected from treatment processes • waste compactor run-off • vehicle washing • vehicle oil and fuel leaks • washing of containers • spills and leaks in waste storage areas • loading and unloading areas	Fornax complies with this requirement. Wash waters are diverted to foul sewer via a sealed drainage system. The site has applied for a trade effluent consent. Surface water discharges to Demons Beck have been assessed as clean surface water with no site inputs. Hazardous waste waters are collected in a separate drainage system and will be taken for offsite disposal as hazardous waste.
4	To reduce emissions to water and sewer, if you need to treat waste water before discharge or disposal, you must use an appropriate combination of treatment techniques, including one or more of the following: • preliminary or primary treatment – for example, equalisation, neutralisation or physical separation • physico-chemical treatment – for example, adsorption, distillation	No treatment is required prior to discharge. Fornax will comply with Appropriate Measures for Emissions to Water or Sewer. The sewer discharge will meet BAT AEL's. The discharges to sewer will be in accordance with a Northumbria Water Consent to discharge. Emissions to water have been assessed as not being a risk. All site drainage is via a controlled sealed drainage system with penstock valves to allow shut off.



	or rectification, precipitation, chemical oxidation or reduction, evaporation, ion exchange, or stripping • biological treatment – for example, activated sludge process or membrane bioreactor • nitrogen removal – for example, nitrification and denitrification • solids removal – for example, coagulation and flocculation, sedimentation, filtration or flotation	
5	You must direct wash waters from cleaning containers to a foul sewer or sealed drainage system for on-site re-use or off-site disposal. You may need to pre-treat the waters to meet any limits on the effluent discharge consent. Discharges of wash waters to surface water or storm drains are not acceptable.	Fornax complies with this requirement. The sewer discharge will meet BAT AEL's. The discharges to sewer will be in accordance with a Northumbria Water Consent to discharge. Emissions to water have been assessed as not being a risk. All site drainage is via a controlled sealed drainage system with penstock valves to allow shut off. There is no pre-treatment of water required prior to discharge. The site has applied for a trade effluent consent.

Table 24: Clarification on Fugitive emissions to land and water appropriate measures

9	You must take measures to prevent emissions from washing and cleaning activities, including: • directing liquid effluent and wash-waters to foul sewer or collecting them in a sealed system for off-site disposal – you must not discharge them to surface or storm drains. • where possible, using biodegradable and non-corrosive washing and cleaning products • storing all detergents, emulsifiers and other cleaning agents in suitable bunded or containment facilities, within a locked storage area, or in a building away from any surface water drains • preparing cleaning solutions in contained areas of the site and never in areas that drain to the surface water system	Fornax comply with this requirement. The site has a Site Conditioning Report SCR_FNX which takes into account the condition of the facility prior to use and identifies cleaning materials in use on the site as a baseline. Headings 1.0 and 2.0 of this report provides information in relation to the assessment undertaken on the wash waters and the drainage system. The drainage system is a purpose built sealed contained drainage system. It is made up of three separate lines. Hazardous drainage, Foul sewerage and surface water. All chemical detergent storage is stored away from and drains and in accordance with a COSHH assessment for that product.
17	For sub-surface structures, you must:	Fornax comply with this requirement. All drainage systems were purpose built with as built drawings available detailing all aspects of the drainage



	- establish and record the routing of all site drains and sub-surface pipework. - identify all sub-surface sumps and storage vessels. - engineer systems to minimise leakages from pipes and make sure they are detected quickly if they do occur, particularly where hazardous substances are involved - provide secondary containment or leakage detection for sub-surface pipework, sumps and storage vessels - establish an inspection and maintenance programme for all sub-surface structures, for example, pressure tests, leak tests, material thickness checks or CCTV	system. The infrastructure media use is suitable and in accordance with the Building Regulation requirements for drainage. Heading 4.0 of this document provides information in relation to the sub surface tank and confirms secondary containment and that it will undergo annual pressure testing. The concrete used in the formation for drainage around the hazardous waste drainage line has been specified as BREEDON Titan™ 'Heavy Industrial Concrete' which is chemically resistant. All the subsurface drainage for the site will be maintained and if required will undergo CCTV inspection.
18	For surfacing, you must design appropriate surfacing and containment or drainage facilities for all operational areas, taking into account: - collection capacities - surface thicknesses - strength and reinforcement - falls - materials of construction - permeability - resistance to chemical attack - inspection and maintenance procedures	Fornax comply with this. At design stage the site drainage was considered and a drainage strategy was developed taking in to account. - collection capacities - surface thicknesses - strength and reinforcement - falls - materials of construction - permeability - resistance to chemical attack Inspection and Maintenance is contained within the site ISO14001 Procedures.

The following responses only relate directly the potential emissions from the carbon filter abatement.

Table 25: Clarification on Emissions to air appropriate measures

1	Your facility's emissions inventory must include information about the relevant characteristics of point source emissions to air, such as the: - average values and variability of flow and temperature - average concentration and load values of relevant substances and their variability	Fornax comply with this requirement. Where activated carbon filtration abatement is used, it is assumed that the efficiency of contaminant removal is 100% upon commissioning. Thus, at this efficiency level, no emissions are expected. Consequently our response does include emission evaluation from the activated carbon abatement.
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	• flammability, lower and higher explosive limits and reactivity • presence of other substances that may affect the waste gas treatment system or plant safety – for example, oxygen, nitrogen, water vapour, dust	
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Table 26: Clarification on Emissions to water or sewer appropriate measures

1	You must identify the main chemical constituents of the site's point source emissions to water and sewer as part of the site's inventory of emissions.	Fornax comply as they have undertaken an assessment which is detailed in headings 1.0 and 2.0 in this document. There is no hazardous substance emissions to water or to sewer. In this assessment any chemical constituents have been identified.
2	You must assess the fate and impact of the substances emitted to water and sewer following the Environment Agency's risk assessment guidance.	Fornax complies with this requirement for Emissions to Water or Sewer. Fornax have undertaken an assessment which is detailed in headings 1.0 and 2.0 of this document above. This assessed the fate and impact of the substances emitted to water and sewer. The sewer discharge will meet BAT AEL's. The discharges to sewer will be in accordance with a Northumbria Water Consent to discharge. Emissions to water have been assessed as not being a risk. All site drainage is via a controlled sealed drainage system with penstock valves to allow shut off.

Table 27: Clarification on Emissions to water or sewer

1	Your facility's emissions inventory must include information about the relevant characteristics of point source emissions to water or sewer, such as: • average values and variability of flow, pH, temperature, and conductivity • average concentration and load values of relevant substances and their variability – for example, COD (chemical oxygen demand) and TOC (total organic carbon), nitrogen species, phosphorus, metals, priority substances or micropollutants • data on bio-eliminability – for example, BOD (biochemical oxygen demand), BOD to COD	Fornax complies with this requirement. The site will discharge foul water to sewer via a Consent to discharge. Q1 and Q2 above in this document provide details of the assessment undertaken in relation to surface water discharges. There is no hazardous substances to surface water. Fornax have a Site Conditioning Report containing stages 1-3 which identifies potential on site emission sources. Upon commissioning of the plant, a full emissions inventory H1 assessment will be undertaken. This is expected to be issued within the permit as an Improvement Condition requirement.
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	ratio, Zahn-Wellens test, biological inhibition potential, for example, inhibition of activated sludge	
2	For relevant emissions to water or sewer identified by the emissions inventory, you must monitor key process parameters (for example, waste water flow, pH, temperature, conductivity, or BOD) at key locations. For example, these could either be at the: • inlet or outlet (or both) of the pre-treatment • inlet to the final treatment • point where the emission leaves the facility boundary	Fornax complies with this requirement. Water emissions will be monitored in accordance with the with the Consent to discharge to foul sewer. Upon commissioning of the plant, a full emissions inventory H1 assessment will be undertaken. This is expected to be issued within the permit as an Improvement Condition requirement.

Table 28: Clarification on Waste Minimisation, Recovery and Disposal appropriate measures

1	You must have and implement a residues management plan that: • minimises the generation of residues from waste treatment • optimises the reuse, regeneration, recycling or energy recovery of residues, including packaging • makes sure you properly dispose of residues where recovery is technically or economically impractical	Fornax complies with this requirement. Fornax ISO14001 system considers the management of all residues from the process. Where applicable residue will be regenerated for example activated carbon within the carbon filter, and Bottom ash and fly ash being utilised for creation of building materials for landfill applications. Heat created by the process is utilised within a district heating system. This will form part of the R1 calculations for the facility.
2	Where you must dispose of waste, you must do a detailed assessment to identify the best environmental options for waste disposal.	Fornax complies with this requirement. Waste will be assessed and categorised via a WM3 assessment. The environmental options available for the waste will be undertaken in accordance with the requirements of the waste hierarchy. Each waste stream will have its own individual appraisal.
3	You must regularly review options for recovering and disposing of waste produced at the facility. You must do this as part of your management system to make sure you are using the best environmental options and promoting the recovery of waste where technically and economically viable.	Fornax complies with this requirement. The ISO14001 system incorporated a mechanism to ensure that Waste recovery and disposal options are audited to ensure that it has be assessed and categorised via a WM3 assessment. The environmental options available for the waste will be undertaken in accordance with the requirements of the waste hierarchy, and that the recovery



		or disposal option is still the most appropriate. Each waste stream will have its own individual appraisal.
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28.0 CEMS

In the event of the CEMS unit failing the plant would not feed waste and would be shut down until the CEMS unit is repaired or a secondary replacement is brought in as a back up on hire.

If a back up unit was to be used it would comply with the requirements of EN 15259 and Environment Agency guidance notes on monitoring stack emissions measuring locations, techniques and standards for periodic monitoring and TGN M20 for quality assurance of CEMS.

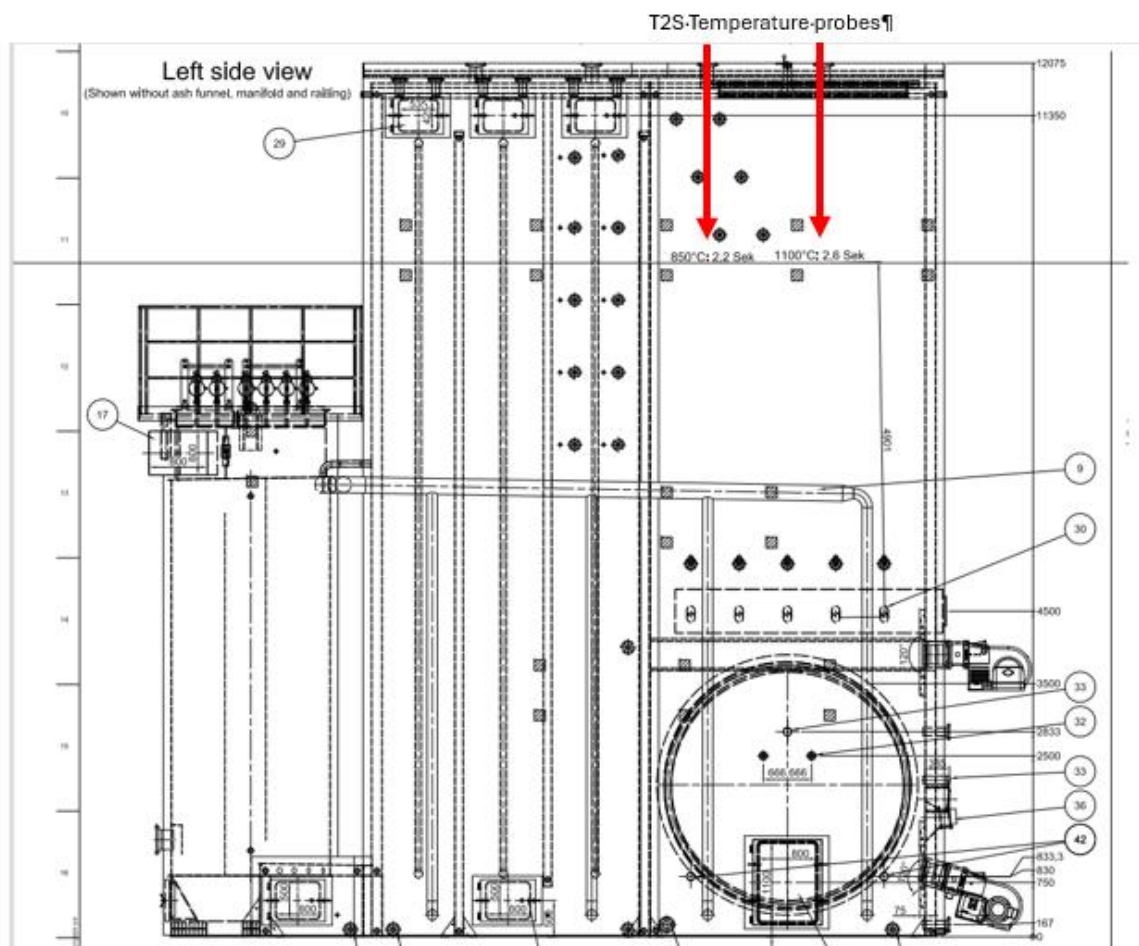
Fornax are currently investigating the cost of having a permanent back up CEMS unit available on site.

29.0 Monitoring of Combustion Temperature

The primary temperature measurement locations used in combustion will be ones located in the kiln and in the secondary combustion chamber which ensures that sufficient TS2 temperature is maintained during combustion. The T2S temperatures are linked to the support burner (EBK) that will ensure that TS2 temperature is maintained if the temperature falls below its required set point.



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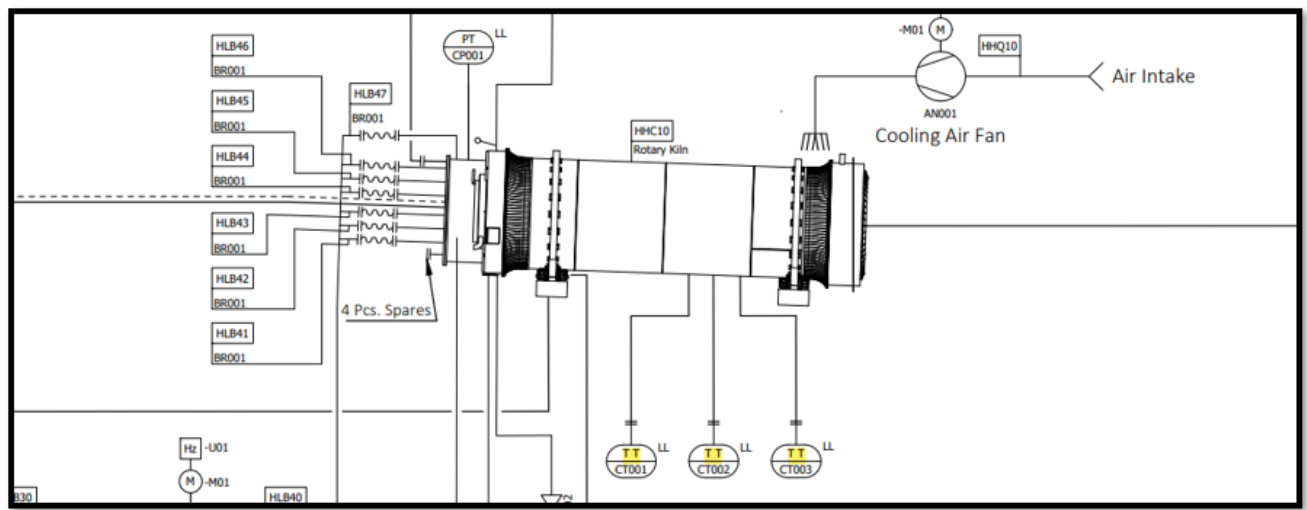


Figure 10: Kiln temperature probe locations

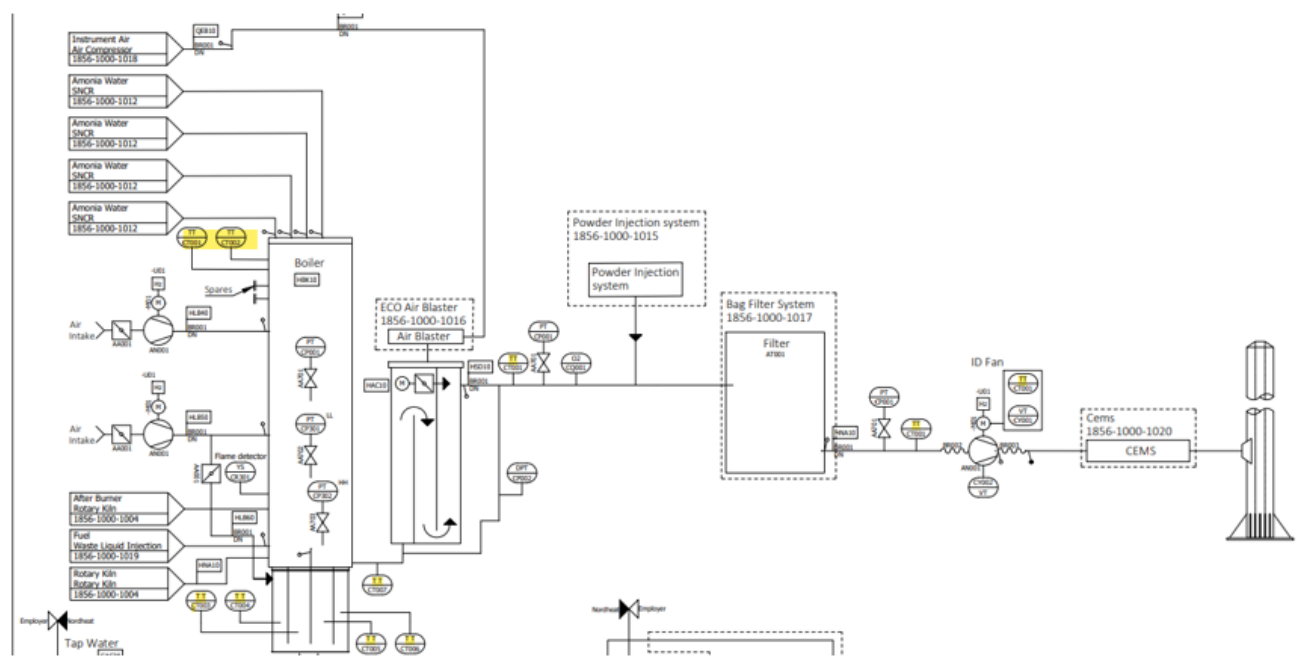


Figure 11: Boiler to stack temperature probe locations

30.0 IBA storage/loading area Risk Assessment

Fornax complies by undertaking specific environmental risk assessments for on site activities. The risk has been assessed for bottom ash and the following has been considered.

Bottom ash is removed via the enclosed conveyor system to a skip. The end of the conveyor is fitted with an enclosed chute which reaches down to skip level to prevent carry over by wind etc. A covered skip is placed below the conveyor to receive the damp ash and this area is surrounded by a drain connected to the sump for



hazardous drainage from the energy centre. There is a daily clean down by plant operators as part of daily housekeeping. The conveyor is stopped whilst skips are exchanged. Thus, there will be no bottom ash on the concrete where the vehicle stops to lift the skip and so no bottom ash should be carried on to roads on or off site.

31.0 APCR Residue Storage

The locations of the APCR storage areas are indicated on the site layout drawing 003.

APC Residues are a mixture of ash carbon and lime from the direct injection of lime and PAC into the combustion gasses and from the lime coating of the filter bags. They are classed as Hazardous Waste.

The APC will be deposited within the bottom of the bag filter housing where it will be collected via an enclosed bagging station. The bags will be stored in a designated area of racking in the warehouse. The bags will be sent for offsite recovery or disposal.

Fugitive emissions will be avoided by ensuring that this activity will be conducted within the Energy Centre and thus is not outside. The bags will be immediately sealed after they have been filled to avoid any emissions into the area. The bag specifications are such that they are designed to receive APCR matter and retain the particles, prior to disposal offsite, therefore avoid fugitive emissions.

32.0 Clarification on how Activated Carbon and Lime will be stored and Techniques to avoid Fugitive Emissions

The locations of the Activated Carbon and Lime storage areas are indicated on the site layout drawing 003.

Activated carbon will be stored in sealed lined bags on pallets in a designated fire rated area of the warehouse. Bags will be transported from their storage location and will be dosed into the process through a sealed PAC dosing system in the carbon dosing room in the Energy Centre.

Fugitive emissions during Activated Carbon dosing will be avoided through the application of a sealed 'dust free' metering system (Figure 12) inside a sealed ATEX rated room, with sealed roller shutter doors that will remain closed during normal operations.



4. Slip the spout through the bag clamp and outside inner pipe.



Figure 12: Activated carbon 'dust free' metering system

The PAC Metering delivery system receives a sealed bag, whereby the discharge spout from the bag is clamped in place to the receiving pipe. The clamp creates a seal before the discharge spout is opened. An example of the delivery system can be seen via this link to the ProMinent PAC Delivery System (please not this is for illustrative purposes but it clearly shows the bag containment clamp). The system is a sealed delivery system in accordance with the requirements of BAT.

Lime will be stored in an 80m³ storage silo in the energy centre. It will be transferred into the silo via a fixed lime delivery line from a delivery tanker which will be coupled up to the filling point on the silo when recharging occurs. The delivery of powder from road tankers relies on a compressor (blower) mounted on the tanker lorry providing a supply of air which is used in three ways:

- To pressurise the tank vessel with air so that inside the vessel there is significant pressure which helps feed the powder out of the tankers. The tank is pressurised at the start of the blow, and can be repressurised as necessary during the course of discharging.
- A separate feed from the air supply passes to the distributor system which fluidises the powder around the distributor plate.
- A third feed of air receives fluidised powder and flows from the tanker, along the connecting pipework and into the silo. The powder fed from the distributor system is thus transferred to the silo in the air stream. Level indicators prevent overfilling of the silo.

The tanker discharge is controlled by the tanker driver. The driver controls the flow of air to the tank, the distributor and the silo, to maintain a constant flow of material into the silo without exceeding the flow capacity of the filter system.



33.0 Fabric Filter

The locations of the APCR storage areas are indicated on the site layout drawing 003.

With reference to the fabric filters proposed in the application for abatement of particulates in the incineration combustion gases. Provide details of your techniques for minimising and detecting bag ruptures and bursts.

Bag filter ruptures will be minimised by adapting preventative maintenance strategies in accordance with the manufactures recommended maintenance plans for the bag filters. The bag filters will be checked periodically for leakages during planned outages by a bag filter specialist service provider and any defective bags will be replaced using the inventory of spares held on site. Representative samples of bag filters will also be taken during planned outages for detailed analysis by a specialist service provider. This analysis will help the site make informed decisions on the health of the bag filters so they can schedule in when the bag filters require a full replacement with new bags.

Bag filter ruptures will be detected by closely monitoring the Continuous Emission Monitoring System (CEMS) by trained operators using the Distributed Control System (DCS) in the Control Room. A gradual increase in particulates emissions is a good indication of a bag rupture. An investigation will be carried out by the Shift Operations Team immediately to determine the cause of the increase particulates emissions, and a decision will be made to stop feeding waste and come offline if the particulates emissions are at risk of breaching the emission limit values. Differential pressure monitoring on the bag filters can also be a good indication of a bag filter failure. A reduction in differential pressure across the bag filters can indicate a failure because a torn bag reduces flue gas air resistance. Both techniques will be used together when assessing potential bag filter ruptures.

34.0 Confirmation of no by-pass

The plant as designed and installed does not include the possibility of bypassing the abatement plant.

35.0 Waste Feed Cut off if abatement system fails

Where these circumstances occur, the control system will prevent the ram from feeding waste from the hopper into the kiln. At operator level, feeding waste into the hopper is a manual function, not automatic. Operators will respond to alarms and instructions from the control, panel and stop feeding waste immediately.

36.0 Doors

The Management of the opening of doors, windows and vents to help maintain negative pressure within the building and minimise fugitive odour emissions has been updated within the Odour Management Plan.

The Report undertaken by Andrew Piercey Ref: BR0923-OLV-01 discusses extract design whereby the building, originally designed for purely natural ventilation, houses a process that has been designed for de-minimise fugitive emissions and is unlikely, under normal operating conditions, to generate odorous emissions, even without a forced extraction system.

The OMP has been updated to reflect the air abatement system whereby air is extracted from the warehouse space and used as air intake for the incinerator. If the incinerator is not available then the air will be treated via a carbon filter.



37.0 Procedures for minimising odour in the event of a shutdown of the incineration line

The OMP has been updated to reflect that in the event of incineration line shut down the extracted airflow from the warehouse will be maintained and via a baffle it will be diverted to an individual carbon filter unit that is designed to remove all VOCs as listed in the BAT AEL. Especially Total VOC, benzene, 1,3-butadiene, ammonia, H₂S.

‘Desotec’ have confirmed that the unit upon commissioning will achieve a 100% efficiency as the technology is based upon adsorption and available porosity of the carbon media. The unit is not expected to drop below 95% efficiency due to the infrequent use of the unit (as only in use as a backup when incineration air intake is not running). At 95% efficiency the unit will be swapped out and replaced by a new unit with new carbon media. BREF Table 2.21 on page 156.

The BAT AELs for emissions of organics are listed which are dealt with by an adsorption activated carbon filtration unit.

BAT-associated emission levels (BAT-AELs) for channelled emissions to air of organic compounds

Substance/Parameter	BAT-AEL (mg/Nm ³) (Daily average or average over the sampling period) ⁽¹⁾
Total volatile organic carbon (TVOC)	< 1-20 ⁽¹⁾ ⁽²⁾ ⁽³⁾
Sum of VOCs classified as CMR 1A or 1B	< 1-5 ⁽³⁾
Sum of VOCs classified as CMR 2	< 1-10 ⁽³⁾
Benzene	< 0,5-1 ⁽³⁾
1,3-Butadiene	< 0,5-1 ⁽³⁾
Ethylene dichloride	< 0,5-1 ⁽³⁾
Ethylene oxide	< 0,5-1 ⁽³⁾
Propylene oxide	< 0,5-1 ⁽³⁾
Formaldehyde	1-5 ⁽³⁾
Chloromethane	< 0,5-1 ⁽³⁾ ⁽⁴⁾
Dichloromethane	< 0,5-1 ⁽³⁾ ⁽⁴⁾
Tetrachloromethane	< 0,5-1 ⁽³⁾ ⁽⁴⁾
Toluene	< 0,5-1 ⁽³⁾ ⁽⁴⁾
Trichloromethane	< 0,5-1 ⁽³⁾ ⁽⁴⁾

⁽¹⁾ For activities listed under points 8 and 10, Part 1 of Annex VII of the IED, the BAT-AEL ranges apply to the extent that they lead to lower emission levels than the emission limit values in part 2 and 4 of Annex VII to the IED.

⁽²⁾ TVOC is expressed in mg C/Nm³.

⁽³⁾ In the case of polymer production, the BAT-AEL may not apply to emissions from the finishing steps (e.g. extrusion, drying, blending) and from polymer storage.

⁽⁴⁾ The BAT-AEL does not apply to minor emissions (i.e. when the TVOC mass flow is below e.g. 100 g C/h) if no CMR substances are identified as relevant in the waste gas stream based on the inventory given in BAT 2.

⁽⁵⁾ The upper end of the BAT-AEL range may be higher and up to 30 mg C/Nm³ when using techniques to recover materials (e.g. solvents, see BAT 9), if both of the following conditions are fulfilled:

- the presence of substances classified as CMR 1A/1B or CMR 2 is identified as not relevant (see BAT 2);
- the TVOC abatement efficiency of the waste gas treatment system is ≥ 95 %.

⁽¹⁾ The BAT-AEL does not apply to minor emissions (i.e. when the mass flow of the sum of the VOCs classified as CMR 1A or 1B is below e.g. 1 g/h).

⁽²⁾ The BAT-AEL does not apply to minor emissions (i.e. when the mass flow of the sum of the VOCs classified as CMR 2 is below e.g. 50 g/h).

⁽³⁾ The BAT-AEL does not apply to minor emissions (i.e. when the mass flow of the substance concerned is below e.g. 1 g/h).

⁽⁴⁾ The BAT-AEL does not apply to minor emissions (i.e. when the mass flow of the substance concerned is below e.g. 50 g/h).

⁽⁵⁾ The upper end of the BAT-AEL range may be higher and up to 15 mg/Nm³ when using techniques to recover materials (e.g. solvents, see BAT 9), if the abatement efficiency of the waste gas treatment system is ≥ 95 %.

⁽⁶⁾ The upper end of the BAT-AEL range may be higher and up to 20 mg/Nm³ when using techniques to recover toluene (see BAT 9), if the abatement efficiency of the waste gas treatment system is ≥ 95 %.

Figure 13: Extract from BREF



38.0 Carbon filter detailed in the OMP

The OMP has been updated to clearly explain the circumstances when the carbon filter abatement is used and where it will be located within the installation.

The activated carbon filter detailed in the OMP will c Activated carbon filters are highly effective at removing residual contaminants and odours. The activated carbon filter will be located outside the facility in a designated area of the yard Please refer to Drawing Reference 003 for location, adjacent to the existing flue gas stack on the North side of the facility.

39.0 Circumstances where the carbon filter abatement and where it will be located within the installation.

The activated carbon filter detailed in the OMP will be utilised in the event of a shutdown of the incineration line, when air from the warehouse will be diverted through it and outside of the building before release to atmosphere. Activated carbon filters are highly effective at removing residual contaminants and odours. The activated carbon filter will be located outside the facility in a designated area of the yard Please refer to Drawing Reference 003 for location, adjacent to the existing flue gas stack on the North side of the facility.

Activated carbon adsorptions is considered BAT for this application.

Please see below for the design specifications:



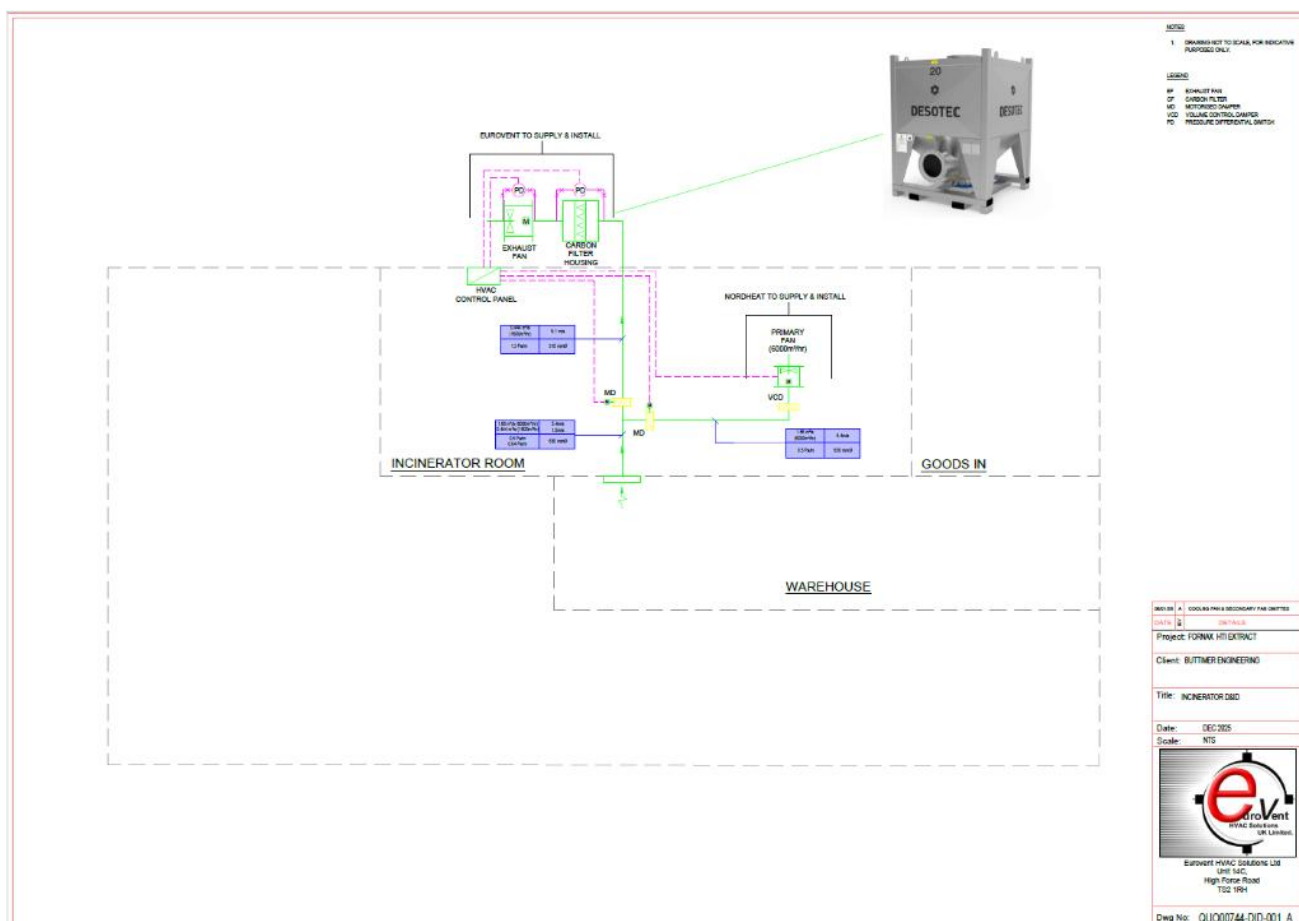


Figure 14: Activated carbon filtration schematic for warehouse air extraction

40.0 Carbon filter options appraisal of odour abatement technologies to demonstrate why the carbon filter is BAT for this site.

The selection of Activated carbon to It has due consideration to the continuous nature of the incineration process and hence the continuous combustion air demand. It also considers that the building, originally designed for purely natural ventilation, houses a process that has been designed for de-minimis fugitive emissions and is unlikely, under normal operating conditions, to generate odorous emissions, even without a forced extraction system.

An assessment into the Extraction and Abatement Requirements assessment was undertaken by 'Ask Pearcey' Report Ref BR0923-OLV-01It has due consideration to the continuous nature of the incineration process and hence the continuous combustion air demand. It also considers that the building, originally designed for purely natural ventilation, houses a process that has been designed for de-minimis fugitive emissions and is unlikely, under normal operating conditions, to generate odorous emissions, even without a forced extraction system.

The building was designed for natural ventilation through control of louvres and also ventilation of the radiant and convective heat from the incinerator room volume. The enhanced extraction can supersede this design and louvres provided to suit the extract regime. The additional mechanical extract has 2 key purposes
Provide proven calculable air flow equal to or greater than the CIBSE air infiltration (leak rate) of the building. The design criteria being 2.5 m³/hr per square meter of exposed surface area. A forced and controlled flow of



air to prevent the build-up of any trace odour emissions or spillages (from unlikely, abnormal operational events).

A specified flow rate of the combustion air can be easily and reliably measured on a continuous basis. A trigger point of 1600 m³/hr can be set as a low flow alarm warning of potential loss of integrity in normal operation. Suitable actions for this event would be tabled in the Odour Management Plan. Any flow rate greater than this trigger, would, by definition, indicate building containment and sufficient average negative pressure.

However please note that an assessment of the very low odour loads anticipated, we believe that the building could operate with reduced extract, indefinitely without risk of an odour release and so the extract can be balanced with due consideration).

The optimal air extract will be utilised as a feed for the air intake feed for the combustion process. When this demand is not available the expected VOCs or odour units are not anticipated to be significant due to the very low odour loads anticipated.

BAT details Absorption as an appropriate method for effective odour control and volatile organic compound (VOC) removal in waste transfer and handling facilities to meet environmental standards.

The process will utilise a unit filled with granular activated carbon (GAC), the most common adsorbent with a wide efficiency range and not restricted to polar or non-polar compounds. Adsorption is a heterogeneous reaction in which gas molecules are retained on a solid or liquid surface (the adsorbent is also referred to as a molecular sieve) that prefers specific compounds to others and thus removes them from effluent streams. When the surface has adsorbed as much as it can, the adsorbent is replaced or the adsorbed content is desorbed as part of the regeneration of the adsorbent.

'Desotec' have confirmed that the unit upon commissioning will achieve a 100% efficiency as the technology is based upon adsorption and available porosity of the carbon media. Due to the infrequent use of the unit, as the unit will only be used as a backup when incineration air intake is not running, the lifetime and efficiency of the unit is expected to last several months.

The activated carbon filter will be monitored on the inlet and the outlet periodically. Upon degradation of the filter efficiency to 95% of VOCs, the unit will be replaced. At which point the carbon unit will be swapped out with another unit.

An assessment was made against other technologies. Wet scrubbing was not deemed appropriate due to there being a negligible concentration of VOC's in the extracted air and the additional burden of maintenance when it would only be used infrequently and periodically.

Biofiltration was not deemed appropriate as there is not sufficient landbank to provide a biofilter and due to lack of use would be burdensome to maintain (ensuring adequate air flow and moisture).

In summary the Activated Granular Carbon system is the most appropriate abatement for the air extraction when the air intake to the combustion process is not available.

41.0 With reference to the operation of the carbon filter

Proposed actions to the mentioned scenarios are outlined below:



Failure of the carbon filter system

Carbon filters are very reliable systems and are not prone to failure. In the unlikely event that the carbon filter system does fail then the supplier of the filter will be contacted immediately to either carry out a repair or to replace the filter. It is expected that any failure would be remediated quickly with minimal impact on odour management.

A planned shutdown of the rotary kiln resulting in no extraction in the reception hall

Extraction from the reception hall during a planned or unplanned shut down of the rotary kiln will be maintained via a designated air extraction system that will direct the air out of the building via a carbon filter system in accordance with BAT.

An unplanned shut down of the rotary kiln resulting in no extraction in the reception hall.

Extraction from the reception hall during a planned or unplanned shut down of the rotary kiln will be maintained via a designated air extraction system that will direct the air out of the building via a carbon filter system in accordance with BAT.

Damage to the building e.g. doors/windows resulting in reduced negative pressure within the building

As soon as any damage to the building is identified then a temporary repair will be carried out immediately until a permanent repair is arranged. It is expected that any damage would be remediated quickly with minimal impact on odour management.

This is included in the odour management plan.

42.0 With reference to table 5 (now table 7) of the OMP

The following scenarios and described actions have been updated in the OMP:

- Failure of the carbon filter system.
- A planned shutdown of the rotary kiln resulting in no extraction in the reception hall.
- An unplanned shut down of the rotary kiln resulting in no extraction in the reception hall.
- Damage to the building e.g. doors/windows resulting in reduced negative pressure within the building

43.0 Skips

Other than IBA, waste will not be stored in skips.

44.0 Fire Fighting Water

Please see Calculation provided in FPP.



45.0 Incinerator pits' in the FPP (page 38). It is unclear what these are. information including their location, storage capacity and times, details of fire protection measures.

There are no incinerator pits at Fornax North East.

The fire prevention plan has been updated.

46.0 Please confirm that you will be using the sprinkler systems described in section 14 of the FPP. If so, amend section 13.

Fornax confirms that we will be using sprinkler systems as described in the FPP. The fire prevention plan has been updated.

47.0 With reference to section 9.1.2 of the FPP.

Fornax confirms that will have procedures in place to monitor storage levels, including the FPL003 COMAH Limits Work Instruction. This procedure will ensure that Fornax does not exceed any COMAH thresholds (including aggregation rules).

The fire prevention plan has been updated.

48.0 Please confirm if you will be using automated smoke and heat detectors.

Reference: A detailed Fire Strategy was developed by Ashton Fire. Fire detection equipment has been determined and installed to meet the requirements of Building Regulations and in accordance with BS 9999 and taking into account the requirements of the Construction (Design and Management) Regulations 2015.

The building is equipped with a category L2 automatic fire detection and alarm system installed in compliance with BS5839-1.

Office areas are equipped with automatic smoke detection units installed in individual office spaces.

Smoke detection beams are installed in both the warehouse and energy centre.

Automatic smoke detection units are installed below the mezzanine in the warehouse, MHE charging room, mezzanine stairwell and also within the energy centre.

Heat detection units are installed in the energy centre.

49.0 Additional Drawings

These drawings are included alongside this submitted report in the "drawings" folder.

50.0 With reference to the diesel firewater pump

The location of the diesel firewater pump is included on the drawing reference 003, site layout plan.



The pump is less than 1 MWth and is not required to fall under the MCPD. Merchant Park Diesel Fire Pump Set No: 5525070018' dated 25th November 2025, the diesel firewater pump thermal input is 628.5KWth and therefore does not fall under the MCPD It is an emergency firefighting piece of equipment and therefore exempt from the MCPD requirements.

51.0 Provide confirmation of the design boiler efficiency.

Fornax North East boiler does not fall within the expected 60% to 80% range described in BAT, as it exceeds this efficiency. See calculation below:

The boiler efficiency can be taken from the useful energy output divided by the energy input.

$$\eta = \frac{\text{Useful Energy Out}}{\text{Energy In}} \times 100$$

In this case, the useful energy output is the heat supplied to the network which is a minimum of 5.435MWth. The energy input can be taken from the NCV and throughput of waste. At design levels this is an NCV of 18.8MJ/kg and a throughput of 1.25t/hr. The energy input is therefore 6.528MWth resulting in an efficiency of ~83.3%

$$\eta = \frac{5.435}{6.528} \times 100 = 83.257\%$$

52.0 Implementation of the proposed district heating scheme. Including a timescale for its implementation.

The District Heating timeline is:

Off taker 1 - within 3 months of the plant being fully operational

Off taker 2 - within 6 months of the plant being fully operational

Off taker 3 - within 1 year of the plant being fully operational

Please note that until a draft permit is issued Fornax has been instructed to keep the off takers identity confidential.

53.0 Assessment of the viability of generating electricity from the waste heat produced by the installation, including consideration of available technologies such as Organic Rankine Cycle, Kalina Cycle, steam turbine technologies, and CHP.

The generation of electricity by the project was considered at an early stage, but the opportunities for distributing heat from the plant in the locality were significant and offered much greater efficiency benefits than the generation of electricity.

The plant is designed to recover heat in the form of hot water at a temperature 130°C which does therefore limit the selection of options for the generation of electricity and are described in the following sections:

Steam Turbine Technology



Conventional steam turbines require saturated or superheated steam at much higher temperatures and pressures than 130°C hot water can provide. At 130°C, the energy content (enthalpy difference) is insufficient for effective steam expansion and power generation, excluding steam turbines from being feasible.

On this basis also, true CHP with standard steam turbines is therefore not viable at this temperature. Maximum CHP benefit is already being achieved by the direct supply of hot water for district heating. Where high degrees of heat export is possible, this is the most energy-efficient option and aligns with IED requirements for heat recovery and resource efficiency.

Organic Rankine Cycle (ORC)

ORC technology can convert low- to medium-grade heat sources (typically 90–200°C) into electricity using working fluids with boiling points lower than water. ORC units can technically operate at 130°C, but in general electrical efficiencies are low and for this temperature range may be as low as 8%. This means that the amount of recoverable electricity is modest compared to the heat supplied.

Kalina Cycle

The Kalina Cycle is more efficient than ORC at very low heat source temperatures (typically below 120–130°C), but for waste heat at 130°C, performance gains over ORC are marginal and capital and operational complexity are higher.

Table 1: Assessment Summary Table

Technology	Typical Viable Temp Range	Suitability at 130°C	Notes
Steam Turbine	>180°C	Not viable	Requires higher temp/pressure than hot water at 130°C
ORC	90–200°C	Marginal	Technically works, low efficiency, limited additional benefit
Kalina Cycle	100–130°C	Low-marginal	Slightly higher efficiency, increased complexity/cost

Conclusion

Given the plant's ability to supply nearly 100% of its heat output as 130°C hot water for district heating, this already represents best practice for waste heat recovery under IED principles and UK BAT. The incremental benefit of generating electricity via ORC or Kalina Cycle at this specific temperature/scale (especially when the heat would otherwise be fully used for district heating) is small, and cannot generally be justified on efficiency, environmental, or economic grounds for a plant of this size and configuration.



54.0 Provide further justification for why fluidised bed has been discounted as the combustion technology.

Fluidised bed technology is where combustion air is passed through a distribution system into the bottom of a bed of, for example, sand. This causes the sand bed to become aerated and less dense due to the presence of the air and therefore becomes an ideal medium for the combustion of certain types of wastes. The bed material is heated up to its operational temperature, typically around 600 ° C, at which point a pre-processed fuel is fed into the bed. The highly turbulent nature of the fluidised bed breaks up these fuel particles, causing them to combust efficiently, whilst any larger, inert particles (aggregate, metals etc) fall to the base of the combustor where they must be effectively removed otherwise they could cause a disturbance in the distribution of the air and, in an extreme case, collapse the bed entirely.

Whilst Fluidised Bed Combustion has many applications within the processing of waste this is predominantly in the treatment of homogeneous, prepared fuels such as sludges or RDF. This typically means that fuels must be reasonably consistent in particle size as well as composition and energy content.

The waste streams to be received at the facility include clinical waste streams contain sharps, metal instruments, glass, plastics, textiles, body parts, sealed containers, etc, whilst hazardous wastes can arrive on site in a variety of different containers for testing and subsequent appropriate treatment.

Whilst in theory, they could be subject to pre-processing this would require significant pre-treatment including shredding, which could expose workers to health risks when maintaining the plant and potential release of undesired materials. For that reason many healthcare-waste regulations and operator practices prefer minimal mechanical handling before secure thermal destruction.

Ultimately, these streams are widely recognised throughout the industry to be more appropriate for treatment in a rotary kiln than a fluidised bed.

55.0 Confirm whether flue gas recirculation (FGR) will be used. If not, provide justification.

High-temperature hazardous waste incinerators often deal with highly variable waste streams, which can lead to unpredictable combustion conditions. FGR can exacerbate process instability, impacting complete burnout of organics and compromising destruction efficiency for hazardous pollutants like PCDD/F, PCBs, and VOCs.

Risk of Increased CO and UHC: FGR lowers flame temperature and oxygen concentration, reducing NO_x emissions, but may also increase carbon monoxide (CO) and unburned hydrocarbons (UHC) due to suboptimal combustion when dealing with load swings typical in HTI operations.

Corrosion and Fouling: The recirculated flue gases may contain acidic compounds and corrosive species, elevating maintenance demands and reducing operational reliability, especially in aggressive HTI settings.

Efficiency Losses: Excessive FGR ratios can reduce heat transfer efficiency and overall energy recovery when the incinerator is operated at the high temperatures and loads required for hazardous waste destruction.

Flue gas recirculation has been proven to be ineffective for high-temperature hazardous waste incinerators because of operational instability and potential losses in combustion and pollutant destruction performance. SNCR with advanced filtration represents a more reliable, BAT-compliant approach for controlling emissions in these facilities.



The use of flue gas recirculation is used mainly in biomass plants and liquid based HTI facilities, using high moisture to increase the inlet temperature. It is also used in stable combustion processes where the calorific value is continuously high and the correction of pyrolysis temperature is needed. In this process the use of recirculation will make it impossible to retain the required 1100°C degrees for 2 seconds because the oxygen low gas will cool the pyrolysis way too much.

Fornax and its advisors confirm that FGR was not an appropriate technology for this facility and associated waste streams.

56.0 BAT Assessment to Compare SNCR to SCR

Further justification is required for why SNCR is BAT for this installation

Overview

The facility currently uses Selective Non-Catalytic Reduction (SNCR) to control NO_x emissions from the rotary kiln combustion of hazardous and non-hazardous wastes. SNCR has been selected over Selective Catalytic Reduction (SCR) not only on the basis of cost, but also because of overall environmental performance, technical suitability for this plant configuration, and proportionality of benefit versus complexity and risk.

Reasons for Selecting SNCR over SCR (Beyond Cost)

SNCR is technically well suited to rotary-kiln waste incineration because it operates directly in the high-temperature post-combustion zone that already exists in the process, avoiding the need for major ductwork changes or creation of a separate temperature window for a catalyst (*Reference 8,9,10*).

In contrast, SCR typically requires a defined temperature range and a clean, conditioned flue-gas stream; for hazardous-waste kilns this commonly drives tail-end SCR placement downstream of flue-gas cleaning with reheating, plus additional ductwork and fan duties, adding energy use and complexity (*Reference 3,4,5,6,7*).

SNCR does not use a catalyst and is therefore more robust in the presence of dust, metals and acid gases characteristic of hazardous-waste combustion (*Reference 4,5,9,10*).

By comparison, SCR relies on catalyst activity that can be reduced through deactivation/poisoning or plugging in challenging flue-gas conditions, creating performance loss, increased pressure drop and higher maintenance/component replacement burden (*Reference 3,4,5,10*).

SNCR's integration typically requires less additional equipment and footprint than SCR (reactor/catalyst housing, reheater, additional fans and ducting), reducing construction risk and the number of operational interfaces introduced into a congested flue-gas path (*Reference 3,4,5*).

SNCR also avoids the generation of spent catalyst that would require handling and disposal, reducing additional waste streams in line with waste-hierarchy principles (*Reference 4,5*).

Global Warming Potential of SNCR vs SCR

When comparing global warming potential, both direct and indirect greenhouse-gas effects have been considered. In both SNCR and SCR, the primary NO_x reduction chemistry converts NO_x to nitrogen and water using a nitrogenous reagent; key differences arise from nitrous oxide (N₂O) formation and additional energy consumption (*Reference 2,3,6,10*).



SNCR can form N_2O if reagent injection is not managed within an optimal temperature window/stoichiometry, but design and control can limit this while achieving NO_x reduction performance (*Reference 9,10*)

For SCR in this application, the principal climate impact concern is the extra energy required in a typical tail-end arrangement: flue gas reheating to catalyst operating temperature and added fan power to overcome catalyst/reactor pressure drop and associated ducting losses (*Reference 3,6,7*).

Published life-cycle and environmental assessments for waste-to-energy / hazardous-waste contexts indicate that once these auxiliary energy demands are included, replacing SNCR with tail-end SCR can increase overall global warming impact even where stack NO_x is reduced (*Reference 3,6*)

On this basis, for this rotary-kiln facility, an optimised SNCR system is considered to have a lower net global warming impact than an SCR system designed for equivalent duty when realistic auxiliary energy demands are accounted for (*Reference 3,6*).

NO_2 Process Contribution

SCR can achieve higher NO_x removal efficiencies than conventional SNCR, but the environmental relevance of the incremental improvement must be assessed at receptor level (ground-level NO_2) rather than only at the stack (*Reference 10*).

Dispersion modelling for this facility (using permitted stack conditions and SNCR performance) demonstrates compliance with applicable air-quality standards and assessment levels for NO_2 at relevant receptors. Therefore, while SCR would further reduce stack NO_x , the additional reduction would not materially change the overall air-quality outcome or compliance status if process contribution is already not significant (*Reference 10*).

Given that SNCR already achieves compliance, the additional complexity, risk and environmental burden associated with SCR is not considered proportionate for this installation. (*Reference 3,6,5*).

Cost per Tonne of NO_x Abated

While cost is not the sole driver, proportionality is an important regulatory and environmental principle. Indicative literature values show SNCR typically delivers moderate NO_x reduction at lower CAPEX and modest OPEX in industrial and waste-to-energy applications (*Reference 4,5,8,9*).

By contrast, SCR in smaller/more complex units (including waste-to-energy/hazardous-waste contexts) often has substantially higher total cost per tonne of NO_x removed due to catalyst cost, reheating, additional fan power, maintenance and complex integration (*Reference 3,4,5,6*).

Applying this proportionality lens to a facility of this scale, the incremental cost per tonne of NO_x abated by SCR relative to optimised SNCR would be significantly higher while delivering only marginal additional receptor-level benefit and potentially increasing life-cycle greenhouse-gas impact due to auxiliary energy (*Reference 3,6,10*).

Conclusion

SNCR has been selected and retained over SCR for this rotary-kiln hazardous- and non-hazardous-waste facility because:

- It is technically well matched to the process and makes effective use of the existing high-temperature zone without extensive modifications (*Reference 8,9,10*)



- It is robust in the presence of dust, acid gases and trace contaminants, reducing operational risks associated with catalyst poisoning/plugging and associated maintenance burden (*Reference 4,5,10*).
- On a life-cycle basis, an optimised SNCR system can deliver lower overall global warming impact than tail-end SCR due to avoided reheating and pressure-drop penalties (*Reference 3,6*).
- Current SNCR-controlled emissions are sufficient to ensure that NO₂ process contribution remains within applicable air-quality standards at relevant receptors; additional SCR benefit is marginal in this case (*Reference 10*).
- SCR's cost and complexity are not proportionate to the incremental environmental benefit for this installation, considering additional equipment, potential secondary waste (spent catalyst), and higher auxiliary energy demand (*Reference 3,4,5,6*).

Accordingly, selecting SNCR over SCR is based on a combination of environmental, technical and economic considerations—not cost alone (*Reference 3,6,8,10*).

References

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10. <https://aaqr.org/articles/aaqr-23-12-0a-0319>

57.0 Provide justification for why you are not proposing direct boiler injection as part of your acid gas abatement system.

Reason: Direct boiler injection is a technique listed in the BATC (27e) and is applicable for all plants.

Direct Boiler Injection (DBI) refers to the injection of alkaline reagents into the boiler i.e. post combustion at a higher temperature than after the boiler when the temperature of the flue gases has been significantly reduced.

The more typical installation does not use DBI, but instead relies on a post heat recovery injection of reagents into the gas stream. The removal of acid gases takes place partially in the moving gas duct, but more significantly as the flue gas passes through the build-up of ash and reagents on the filter bags. Periodically the bags are cleared through a reverse jet of compressed air causing the built-up material to fall into the hopper below for removal.

The use of DBI can be beneficial where the concentrations of acid gases are high such that the dry, fabric filter system becomes close to an overloaded condition. At this time, an alternative injection location may be considered appropriate for the particular removal of SO₂ and HF where higher temperatures increase the reactivity and removal. This then allows more fabric filter capacity for the removal of other acid gases, e.g. HCl.



In these circumstances the selection of the injection point is important, as the addition of reagent can lead to increased fouling within the boiler as well as its consumption being less efficient leading to more resources being required.

In the case of this facility, a typical installation has been incorporated comprising reagent injection post heat recovery and a fabric filter. This has been designed with surplus capacity that not only means that the speed of the flue gas is slower, increasing its reaction time, but also increases the period of time between cleaning cycles and hence improving the utilisation of the reagents. The surplus capacity also means that the pressure drop across the system is lower therefore requiring less fan power/electricity.

Direct boiler injection is not proposed as part of the acid gas abatement system for several technical and site-specific reasons:

Limited Effectiveness for Acid Gas Removal:

Direct boiler (or furnace) injection is typically less effective at removing acid gases such as HCl, SO₂, and HF compared to dedicated post-combustion systems (like dry or semi-dry sorbent injection into the flue gas stream after the combustion section). In high-temperature zones, reaction times are short and temperature is often too high for efficient neutralisation of acidic components, resulting in incomplete removal and higher emissions at the stack.

Reagent Consumption and Distribution:

Reagents injected into the boiler are often consumed inefficiently since the intense combustion environment can lead to rapid decomposition rather than reaction with acid gases. This not only leads to higher reagent usage but also increased operational cost and waste production without proportional benefit in acid gas reduction.

Risk of Fouling and Corrosion:

Introducing alkaline reagents directly into the boiler can cause fouling, deposition, and corrosion on heat exchange and combustion surfaces, adversely affecting boiler efficiency and increasing maintenance requirements. A downstream injection approach allows better optimisation of reaction conditions and minimises operational risks.

Best Available Techniques (BAT) Reference:

Regulatory guidance and industry best practice for hazardous waste incinerators and energy-from-waste plants recommend post-combustion injection of sorbents in dedicated flue gas cleaning stages, as this reliably achieves the required environmental performance while optimising reagent use and minimising secondary impacts.

For these reasons, direct boiler injection is not considered technically justified or environmentally necessary for efficient acid gas abatement at this facility. The selected post-combustion abatement system delivers more effective control, with better operational reliability and compliance with environmental standards as an alternative.



58.0 Provide justification for not proposing the use of catalytic filter bags for the reduction of channelled emissions to air of organic compounds including PCDD/F and PCBs; and NOx.

The following reasons are being provided to justify why catalytic filter bags are not specified for this plant:

- **Temperature and Process Compatibility:** Catalytic filter bags require sustained flue gas temperatures (often above 160–180°C) for optimal catalyst activity. The Fornax hazardous waste incinerator will operate with fluctuating temperatures, sometimes dropping below the catalyst activation range, especially when handling high-moisture or variable waste streams; this may reduce catalytic efficiency and overall destruction performance of organics and NOx. Other times it will operate with flue gas temps above 250°C and this causes rapid and unsafe degradation of the catalyst bags
- **Material Durability and Corrosion Resistance:** PTFE (Teflon) filter bags are well-established for their superior chemical resistance and thermal stability in aggressive, high-temperature, and highly acidic incinerator conditions. Catalytic bags, while often using PTFE membranes, incorporate additional catalyst layers or matrices that may be more susceptible to deactivation or mechanical degradation from the fine particulate, heavy metals, and corrosive gases present in hazardous waste incineration flue gas. This presents a significantly enhanced chance of harmful emissions and was a key reason for the selection of Teflon bags
- **Operational Complexity and Maintenance:** Catalytic filter bags necessitate careful control of cleaning cycles, catalyst integrity, and pressure differentials; they are more sensitive to fouling and require routine monitoring to avoid performance loss. In hazardous waste settings, the higher risk of ash deposition and catalyst poisoning (from heavy metals like Hg, Cd, and Pb, or acidic gases) increases both maintenance demands and potential operational downtime.
- The decision not to propose catalytic filter bags instead of Teflon bags is technically justified in hazardous waste incineration due to greater material reliability, robustness under variable process conditions, reduced operational complexity, and proven compliance with BAT 29 and BAT 30 when combined with established post-filtration SNCR abatement systems.
- The catalytic bags are much more prone to failure to work in a process like this – and no evidence of them being used in any HTI plant of this size. Catalytic bags are only workable in a much more stable combustion processes such as a biomass plant.

59.0 Provide an updated site condition report (SCR) to include a Stage 1- 3 assessment.

The site condition report has been updated including a stage 1 – 3 assessment. Please see FORNAX-SCR V2.

60.0 Noise

The ERA has been updated to take into account Noise from venting. The district heating system is a sealed return system and therefore venting is not expected to occur unless it is an emergency situation.

Steam is not generated on site so steam venting in normal operations will not occur. If the boiler PRV is activated (emergency operation), hot water released will convert to steam. There are no measures in place to minimise this noise as it is not a normal operating condition.



61.0 Raw materials

An energy efficiency plan will be a requirement within the ISO14001 Management System which will calculate the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, Calorific value achieved, gas usage against specific energy consumption expressed in kWh/tonne of waste processed, use of raw materials and water consumption) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the process(es) carried out, waste stream(s) treated, etc.



DRAWINGS

Submitted separately.



APPENDICES

Submitted separately.

