

1. Introduction

Name of Company	Tradebe Healthcare National Ltd
Name of Plant	Wrexham Clinical Waste Incinerator
Permit Number	EPR/WP3836ZF
Address	Marlborough Road Wrexham Industrial Estate Wrexham LL13 9RJ
Phone	01978 729933
Contact name	Vince Norris
Position	Site Manager
Date	September 2016

2. Process Description

The Incinerator undertakes operations and activities in the treatment of hazardous waste including:

- The administration of waste management activities
- The reception, storage and preparation of wastes prior to incineration
- The incineration process
- The exhaust gas cleaning process
- The handling of solid waste residues

The Incinerator is designed to process approximately 6,000 tonnes of hazardous waste per annum.

Waste is delivered to the site using road transport and is received in solid form, typically in plastic sacks, plastic and cardboard boxes including sharp boxes, and other non-metal drums, kegs, or sack. These generally comprise of waste from a healthcare background that requires treating to render safe from infection, or other potentially harmful property, or to render unrecognisable as clinical waste.

The Incinerator is a rotary kiln design that has the capability of handling a wide range of wastes. The incineration process produces two primary waste streams: Incinerator Bottom Ash (IBA) which is a combustion process waste and Air Pollution Control Residues (APCR) which is the solids waste extracted from the combustion gases following the introduction of solid reagents.

The process is controlled by a semi-automated system which ensures that the optimum operating conditions are maintained in order to meet emission limits set by the Authorisation. Automated control systems maintain the incineration process at the correct temperature and ensure that the waste residence time within the kiln is such that the waste is disposed of with due regard to environmental impact and compliance with permit conditions.

3. Review of the Process

3.1. The administration of waste management activities

3.1.1.No fugitive emissions other than any associated with general administration and office activities are likely.

3.1.2.Waste is not booked in without the necessary pre-acceptance to ensure that it is suitable for processing at the Incinerator and in compliance with Permit conditions.

3.2. The reception, storage and preparation of wastes prior to incineration

3.2.1.Storage of waste can be a source of fugitive emissions associated with Waste Incineration. However due to the solid and non-volatile nature of the vast majority of the waste treated at the Wrexham Incinerator there is very little likelihood for fugitive emissions to arise from the receipt or storage from the waste.

3.2.2.Waste preparation is kept to an absolute minimum as it is prohibited to open sacks, sharps boxes or other containers.

3.2.3.In the unlikely event of a fire or spillage of a significant quantity of liquid, the site is equipped with a penstock valve that would be closed to contain any spillage or run off so that it could be removed by an appropriate waste contractor.

3.3. The incineration process

3.3.1.Waste is loaded into the Incinerator via a loader which is automatically controlled to ensure that the inner guillotine door is not opened until the loader door is closed to minimise any fugitive releases.

3.3.2.The kiln is kept under negative pressure which ensures that any possible fugitive emissions from the loader are controlled and contained.

3.3.3.There is some loss of material from the front end of the kiln but this is a small quantity of dry solid material that occurs indoors and is easily collected and swept up.

3.3.4.The Incineration process uses natural gas fed gas burners to maintain temperatures but these are automatic systems and there is no concern over fugitive emissions.

3.3.5.As the incineration process is kept under negative pressure by the induction fan used to provide draft through the process all emissions in the gas stream are directed through the exhaust gas cleaning process and through the stack that is the Permitted release point identified as A1.

3.4. The exhaust gas cleaning process

3.4.1. Lime and carbon reagents are injected as part of the abatement. Both are dry powders and share a delivery route into the incinerator duct work.

3.4.2.Lime is delivered by bulk tanker and kept in a bulk silo before entering a closed delivery system to the Incinerator. There is the potential for small fugitive emissions during maintenance activities of bulk deliveries. All operation happen above good condition hard standing and any spillages can be easily collected and swept up.

3.4.3. Carbon was initially used in 500kg IBC. During 2015 an improved carbon handling system was introduced using 18 to 25 kg bags to give improved consistency of carbon delivery. This system initially was of an open hopper design and there was some potential for carbon to be released inside the building (though onto a good condition hard standing) however the hopper system has now been improved and as such there are less fugitive emissions. Due to the use of small bags, any spillages will be easily be contained.

3.5. The handling of solid waste residues

3.5.1. There are two waste outputs from the incinerator, both of which are solid.

3.5.2. Incinerator Bottom Ash (IBA) is non –hazardous output from the kiln section of the incinerator. IBA is damp following passage through a water bath and is transferred for non-hazardous landfill in RoRo skips. There is little likelihood for fugitive emissions. Some small amount of IBA may be present on the floor following skip exchange but the floor is good condition hard standing and the material is easily cleared up.

3.5.3. Air Pollution Control Residues (APCR) is a hazardous waste combining fly ash and lime and carbon that are injected to abate certain substances from the gas stream before the gas stream from the incinerator is released to atmosphere. APCR is filtered out from the gas stream and is discharged to 1000l IBCs for road transport to permitted facilities. The APCR is a dry powder and there is the potential for a small amount of loss when IBCs are filled and swapped for empty IBCs. However this operation occurs in doors and is easily swept up. IBCs are only kept on site until there is a vehicle load and then removed from site.

4. Summary of Fugitive emissions

There is very low likelihood of fugitive emissions from the administration waste management activities or of clinical waste, and the impact from any fugitive emission would be very low.

There is the potential for some small releases of solid fugitive emissions from the activities associated with the operation of the Incinerator, exhaust gas cleaning and subsequent solid waste management. However the potential impact from any releases would be minimal as it would be solid material onto good condition floor. Any release would be visible and easily collected up.

The site has an improved PPM (Planned Preventative Maintenance) system to be introduced in 2016 that will further improve both the prevention of fugitive emissions, and also the spotting of any issues that could potentially lead to fugitive emissions.