FICHTNER
Consulting Engineers Limited

Hillingdon Clinical Waste Incinerator

Medisort Ltd

EP Variation

ENGINEERING CONSULTING

Document approval

	Name	Signature	Position	Date
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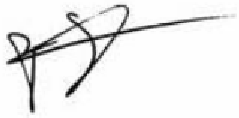
Checked by:	James Sturman		Lead Consultant	27/07/2023

Document revision record

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0	27/07/2023	For Client	JS2	JRS
1				
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Non-technical Summary

The Environment Agency (EA) granted an Environmental Permit (EP) (Ref: EPR/YP3404SE) for the operation of the Hillingdon Clinical Waste Incinerator, Uxbridge, Middlesex (the Facility) in December 2023. Since it was granted, six variations to the EP have been granted by the EA.

The EP was transferred to the current Operator Medisort Limited in October 2021. The most recent Variation was granted in March 2023, and consolidated the EP to align with the modern EP format and associated conditions. The March 2023 Variation also incorporated the option to operate the Facility as a waste transfer station to allow the off-site transfer of clinical waste.

Medisort understands that the Facility is classified as an existing plant for WI BREF compliance purposes as the EP was granted prior the publication of the WI BREF. Therefore, for the purposes of this application, and the Regulation 61 response which is enclosed with this application, it has been assumed that the Facility is required to comply with BAT requirements for a new plant as defined in the WI BREF.

For the purposes of this application, the proposed changes are summarised as follows:

- Installation of a twin pass boiler;
- Installation of an automated combustion control system, referred to as Intelligent Combustion Management System (ICMS), to control and optimise the operation of the combustion process;
- Changing the acid gas reagent from lime to sodium bicarbonate;
- Replace the bag filters with dry ceramic filters to abate emissions of dusts;
- Improvements to external areas of hardstanding and surface water drainage systems; and
- Modifications to the bin wash system to utilise waste steam.

Prior to submission of the application the Site Inspector has confirmed that the proposed changes would be classified as a Normal Variation. Therefore, this application is submitted as a Normal Variation.

Contents

1 Introduction

1.1 Background

The Environment Agency (EA) granted an Environmental Permit (EP) (Ref: EPR/YP3404SE) for the operation of the Hillingdon Clinical Waste Incinerator, Uxbridge, Middlesex (the Facility) in December 2023. Since it was granted, six variations to the EP have been granted by the EA.

The EP was transferred to the current Operator Medisort Limited in October 2021. The most recent Variation was granted in March 2023, and consolidated the EP to align with the modern EP format and associated conditions. The March 2023 Variation also incorporated the option to operate the Facility as a waste transfer station to allow the off-site transfer of clinical waste.

The Facility has been operated as a waste incineration plant since the construction of the hospital in the 1960s. The Facility was taken offline in 2019 due to safety concerns associated with its operation. A number of upgrades are currently being made on the boiler and flue gas treatment systems to meets the requirements of the Industrial Emission Directive (2010/75/EU) and the Waste Incineration BREF (WI BREF), as well as making other minor improvements to the overall operation. The implements are expected to be completed by September 2023, with re-commissioning of the Facility commencing when the improvements have been implemented.

Medisort understands that the Facility is classified as an existing plant for WI BREF compliance purposes as the EP was granted prior the publication of the WI BREF. Therefore, for the purposes of this application, and the Regulation 61 response which is enclosed with this application, it has been assumed that the Facility is required to comply with BAT requirements for a new plant as defined in the WI BREF.

1.2 Proposed Changes

For the purposes of this application, the proposed changes are summarised as follows:

- Installation of a twin pass boiler;
- Installation of an automated combustion control system, referred to as Intelligent Combustion Management System (ICMS), to control and optimise the operation of the combustion process;
- Changing the acid gas reagent from lime to sodium bicarbonate;
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- Improvements to external areas of hardstanding and surface water drainage systems; and
- Modifications to the bin wash system to utilise waste steam.

1.3 Type of variation

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

The Environment Agency has published guidance (Regulatory Guidance Note 8 – Substantial Change) which defines a substantial change. It is acknowledged that the guidance has subsequently been withdrawn but any replacement guidance is not as prescriptive. The guidance defined a substantial change as:

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

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

As identified in section 1.2, the proposed changes will not result in a change to the Facility which results in a change in operation which is equivalent to a Schedule 1 activity, and will not involve the incineration of hazardous waste in a non-hazardous waste incineration facility. Therefore, Medisort understands that the permit variation will be classed as a normal variation.

Prior to submission of the application, it was confirmed by the EA Site Inspector that the application would be classified as a Normal Variation.

2 Proposed changes

Medisort is proposing a number of improvements to the operation of the Facility as identified in section 1.2. Some of the proposed amendments are to address concerns raised previously by the Health & Safety Executive (HSE) in relation to the combustion controls being labour intensive, others are to improve the environmental controls associated with the Facility.

2.1 Replacement of the twin gas boiler

A replacement twin pass boiler has been installed to ensure the plant meets current requirements set by HSE. The main pressure vessel will be constructed from ASEM/BSEN certified boiler plate and tested beyond 16 bar working pressure to ensure safe operation. The unit is also fitted with safety blow offs and backup safety blow offs as well as high and low water level sensors.

Waste heat will transfer energy from the gases to the water via a tube and shell boiler which will:

- Reduce the temperature of the exhaust gasses to 180-250°C to allow for efficient operation of the ceramic filter technology; and
- Increase the water temperature within the boiler to produce steam which is subsequently exported to the hospital.

2.2 Installation of an ICMS

The previous control system had no human machine interface and no program architecture to allow for safe control of the combustion process. A PLC/SCADA combustion control system (referred to as the ICMS system) is being installed which will provide fully automated sequencing and control of the combustion process. This system will be capable of gathering, displaying, and recording all the required plant operational data. This system will also aid the loading of the plant to ensure emissions do not exceed the approved threshold set within the permit.

The ICMS system as described will control the waste feed to the primary combustion chamber to maintain the operation as continuously as possible to limit the number of start-up and shut down sequences.

2.3 Improvements to the acid gas and particulates abatement

Particulate emissions shall be removed using a dry ceramic pollution control system. This replaces the aging fabric filter system previously installed on the plant. Emissions of HCl and SO_2 shall be abated by the addition of sodium bicarbonate which will be automatically injected into the gas flow with the dosing controls via the CEMS system. Sodium bicarbonate is the proposed reagent due to its high efficiency given the proposed operating temperatures (200 to 250°C) for the flue gases.

Ceramic filters are an efficient abatement technique for particulates and will abate particulate emissions to be less that the BAT-AEL of 5 mg/Nm^3.

A BAT assessment of the proposed use of sodium bicarbonate as a reagent and ceramic filters for the abatement of particulates is provided in section 3.

2.4 Improvements to external surfaces and drainage

Improvements are proposed to the areas of external hardstanding and drainage to assist the site with drainage during times of peak rainfall. The changes are considered to be improvements, and will not result in changes to the overall layout of the site drainage systems.

2.5 Use of steam within the bin wash

It is proposed to use waste heat, in the form of steam, to provide hot water to be utilised within the bin wash. Up to 120 kg/hr of steam will be bled from the boiler, at a continuous pressure ranging between 4.0 and 5.5 Bar(g). The hot water demand for the bin wash system is 65^{o}C Celsius at a pressure of 1.5-2.5Bar (g).

3 BAT assessment

3.1 Acid gas reagent

As explained in section 1.2, the proposed acid gas abatement system will utilise sodium bicarbonate as the reagent. It is understood that the acid gas abatement system utilises lime as a reagent. Due to the proposed change in reagent, a BAT assessment of the available reagents has been undertaken.

3.1.1 Available options

The following reagents are considered to be available for the abatement of acid gases:

- Sodium Hydroxide (NaOH);
- Hydrated lime ($Ca(OH)_2$);
- Quicklime (CaO); and
- Sodium bicarbonate ($NaHCO_3$).

The only reagents which are suitable for use within a dry acid gas abatement system are hydrated lime and sodium bicarbonate. As the acid gas abatement system is a dry system, only these reagents have been considered within this BAT assessment.

3.1.2 Environmental Performance

3.1.2.1 Emissions to Air

There is no difference in the emissions to atmosphere from the two reagents. Both are able to achieve the same level of abatement and associated BAT-AELs for the abatement of acid gases.

3.1.2.2 Deposition to Land

Again, there is no difference between the two reagents.

3.1.2.3 Emissions to Water

There are no emissions to water associated with the use of either of the two reagents.

3.1.2.4 Photochemical Ozone Creation Potential

The Photochemical Ozone Creation Potential (POCP) associated with the use of either reagent will be the same. Therefore, there is no difference between the two reagents.

3.1.2.5 Global Warming Potential

Sodium bicarbonate has a higher optimum reaction temperature than lime, which means that slightly less heat is able to be recovered within the boiler. However, given that the Facility exports heat from the combustion process directly to the hospital, the overall reduction in energy available for export is very small. Therefore, it has been assumed that there is no impact on global warming potential from this very small difference.

The reaction of hydrogen chloride and sulphur dioxide with sodium bicarbonate results in an emission of carbon dioxide whereas the reaction with lime does not.

3.1.2.6 Raw Materials

Sodium bicarbonate ($NaHCO_3$) has much better solid handling properties and a significantly lower stoichiometric ratio than hydrated lime ($Ca(OH)_2$). Furthermore, the health and safety considerations/controls associated with the handling of sodium bicarbonate are significantly less than those associated with the handling lime.

$NaHCO_3$ and $Ca(OH)_2$ react with the acid gases to produce alkaline salts as the following equations illustrate:

$$NaHCO_{3(s)} + HCl_{(g)} \rightarrow NaCl_{(s)} + H_2O_{(g)} + CO_{2(g)} \quad \text{(Eq.1)}$$

$$Ca(OH)_{2(s)} + 2HCl_{(g)} \rightarrow CaCl_{2(s)} + 2H_2O_{(g)} \quad \text{(Eq.2)}$$

In order to promote the reactions above, excess quantities of sodium bicarbonate or lime will be required. The excess reagent is lost in the residue. The ratio between the quantity of reagent supplied and the minimum required for the reaction is called the “stoichiometric ratio”.

For sodium bicarbonate, a stoichiometric ratio of 1.3 is required, whereas for lime, a stoichiometric ratio of around 1.8 is required. This initially appears to be economically advantageous for sodium bicarbonate in comparison to lime. However, due to the higher relative molecular weight, and the fewer molecules of acid gas reacting per molecule of $NaHCO_3$, the overall consumption of sodium bi-carbonate is actually 64% higher than $Ca(OH)_2$ on a mass basis.

The reagent required to abate one kmol of hydrogen chloride was calculated as 109 kg of sodium bicarbonate and 67 kg of lime.

Similarly, the reagent required to abate one kmol of sulphur dioxide was calculated as 218 kg of sodium bicarbonate and 133 kg of lime.

3.1.2.7 Waste Streams

The stoichiometric ratio indicates that the amount of residue will be higher with the use of lime as a reagent. The residue production rate for abatement of one kmol of hydrogen chloride was calculated as 84 kg for sodium bicarbonate and 85 kg for lime.

3.1.3 Conclusions

The use of sodium bicarbonate has a number of advantages:

- Handling of sodium bicarbonate requires much less health and safety considerations/controls than handling of lime. Lime is a corrosive material and requires strict COSHH controls for handling and transfer.
- Sodium bicarbonate as a reagent will result in a smaller volume of residue being generated.

Taking the above into consideration, the use of sodium bicarbonate, when compared to lime, is considered to represent BAT for the abatement of acid gases.

3.2 Particulates abatement

As explained in section 1.2, it is proposed to install ceramic-filters for the abatement of particulates. Due to the proposed change in abatement systems, a BAT assessment of the available techniques for the abatement of particulates has been undertaken. The available options for the abatement of particulates from the Facility are as follows:

1. Ceramic-filters;
2. Bag filters;
3. Electrostatic precipitators; and
4. Wet scrubbers.

Ceramic filters are effective at abating emission of particulates and can achieve the BAT-AELs without any supplementary abatement techniques.

The typical operating range for bag filters is 80-200°C. It is noted that bag filters are available which can operate at higher temperatures than this, but the availability of these is limited. The flue gases existing the boiler will be between 200°C and 200°C. Therefore, due to the high flue gas temperatures, bag filters are not considered to represent BAT for the Facility.

Electrostatic precipitators are not capable of abating particulates to the BAT-AELs, and require supplementary techniques to abate particulates. Therefore, electrostatic precipitators are not considered to represent BAT for the Facility.

Wet scrubbing systems are typically utilised to provide the supplementary abatement of particulates and require supplementary techniques to abate particulates to achieve the BAT-AELs. Therefore, wet scrubbing systems are not considered to represent BAT for the Facility.

Taking the above into consideration, Medisort considers that ceramic filters are considered to represent BAT.

4 Environmental Assessments

4.1 Air Quality

An Air Quality Impact Assessment (AQIA) was completed as part of the original EP application December 2004. The AQIA included the flue gas parameters which were assumed within the modelling for the original EP application. A comparison of the flue gas parameters for the AQIA and the Revised design is provided in Table 1:

Table 1: Comparison of flue gas parameters

Parameter	Units	AQIA inputs	Revised design
Flow rate at discharge conditions	m^3/h	27,500	17,157
Flow rate at reference conditions (273K, dry gas, 11% O2, 101.3 kPa)	Nm^3/h	11,200	10,587
Oxygen content	% v/v, dry	Not stated	10.33%
Moisture content	% v/v	Not stated	8.34%
Temperature	ºC	160	160
Internal stack diameter – each duct	m	0.53	0.53
Notes: All data is for both ducts combined, except diameter.			

As shown in Table 1, the revised design results in a slightly lower flue gas flow rate at IED reference conditions than was assumed in the modelling for the AQIA. Furthermore, following re-commissioning, the Facility will be required to comply with the conditions of the Waste Incineration BREF, which will introduce emission limits that are lower than those in the EP for some pollutants. Therefore, the emission rate of pollutants from the revised design will be lower those assumed in the original EP application.

A comparison of the pollutant emission concentration and associated release rates for the AQIA and the Revised design is provided in Table 2:

Table 2: Pollutant Emissions Concentrations and Release Rates

Pollutant	Emission concentration (mg/Nm^3 - except where stated)		Release rate (g/s - except where stated)		
	Original AQ inputs	Revised design	Original AQ inputs	Revised design	% change
Oxides of nitrogen	200	180	0.622	0.529	-14.93%
Sulphur dioxide	50	40	0.156	0.118	-24.38%
Carbon monoxide	50	50	0.156	0.147	-5.47%
Dust	10	5	0.031	0.015	-52.74%
Hydrogen chloride	10	8	0.031	0.024	-24.38%
VOCs	10	10	0.031	0.029	-5.47%
Hydrogen fluoride	1	1	3.111	2.941 mg/s	-5.47%
Ammonia	10	10	0.031	0.029	-5.47%

Pollutant	Emission concentration (mg/Nm³ - except where stated)		Release rate (g/s - except where stated)		
	Original AQ inputs	Revised design	Original AQ inputs	Revised design	% change
Mercury	0.05	0.02	0.156 mg/s	0.059 mg/s	-62.19%
Cadmium and Thallium	0.05	0.02	0.156 mg/s	0.059 mg/s	-62.19%
Other Metals (1)	0.5	0.3	1.556 mg/s	0.882 mg/s	-43.28%
Dioxins and Furans	0.1 ng I-TEQ/Nm³	0.08 ng I-TEQ/Nm³	0.235 ng I-TEQ/s	0.235 ng I-TEQ/s	-24.38%
PaHs(2)	0.2 µg/Nm³	0.2 µg/Nm³	0.622 µg/s	0.588 µg/s	-5.47%
PCBs (3)	5 µg/Nm³	5 µg/Nm³	0.016 mg/s	0.015 mg/s	-5.47%

Notes:

All emissions are expressed at reference conditions of dry gas, 11% oxygen, 273.15K.

(1) Other metals consist of antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni) and vanadium (V).

(5) 0.2 µg/m³ is the maximum recorded at a UK plant (2019 Waste Incineration BREF, Figure 8.121). This is assumed to be the emission concentration for the Facility.

(3) Table 3.8 of the 2006 Waste Incineration BREF states that the annual average total PCBs is less than 0.005 mg/Nm³ (dry, 11% oxygen, 273K). In lieu of other available operational data, this has been assumed to be the emission concentration for the Facility

As shown in Table 2, the revised design results in a ~5% in reduction of the pollutant release rate where the emission limit is unchanged by the implementation of the BREF, and ~62% reduction for the pollutants with the greatest reduction due to the implementation of the BREF (cadmium and thallium). On this basis, no significant environmental effects are anticipated due to emissions from air from the revised design.

Taking the above into consideration, it is not proposed to undertake an additional modelling exercise to consider the impact of emissions from the Facility as the overall impact from the revised designs and implementation of the Waste Incineration BREF will result in lower environmental impacts than predicted in the AQIA.

4.2 Odour

In accordance with the conditions within the EP, Medisort has an existing Odour Management Plan.

The implementation of the revised designs is not expected to change the odour risk associated with the operation of the Facility. Therefore, the existing OMP is not expected to be updated/revised due to the proposed changed to the design and operation of the Facility.

4.3 Water/Sewer

Surface water run-off from building roof and areas of hardstanding and process effluent from the Facility is discharged to the sewer in accordance with the requirements of a Trade Effluent Consent. granted by Thames Water, refer to Appendix 0.

The implementation of the revised designs will not result in any changes to the effluent composition or the quantity of effluent generated at the Facility.

4.4 Noise

Medisort has a Noise Management Plan which is in place to control noise generated by the operation of the Facility.

The implementation of the revised designs is not expected to result in any changes to the noise impacts associated with the operation of the Facility. Therefore, it is not proposed to submit an updated noise assessment in relation to the revised designs. The Noise Management Plan will be reviewed and updated, as required, following commissioning of the revised designs.

4.5 Fire prevention plan

The implementation of the revised designs will not result in any increase in the potential risk of fire at the Facility, or any changes to the proposed management techniques to prevent or mitigate fire. However, as the revised designs have included for improved fire prevent, detection and mitigation measures, the Fire Prevention Plan has been updated for the Facility, refer to Appendix D.

4.6 Raw material consumptions

The quantities of raw materials expected to be consumed at the Facility are provided in Table 3:

Table 3: Expected raw material consumption

Product	Chemical Composition	Estimated consumption (tpa)
Sodium bicarbonate	$NaHCO_3$	1,000
Activated carbon	C	100

The controls associated with the storage and handling of raw materials have been considered within the review of the Operating Techniques, refer to Appendix A.

4.7 Residue generation

The quantities of raw materials expected to be consumed at the Facility are provided in Table 4:

Table 4: Expected residue generation

Product	Estimated generation (tpa)
Bottom ash	1,600
APCr	600

The controls associated with the storage and handling of residues generated have been considered within the review of the Operating Techniques, refer to Appendix A.

4.8 Energy Efficiency

The proposed changes will improve the energy efficiency of the Facility, details of which can be found in the BREF review (BAT 2).

4.9 Operating techniques

The Operating Techniques associated with the Facility are presented in Table S1.2 of the EP. The implementation of the revised designs and subsequent operation of the Facility, as detailed within section 2, requires the Operating Techniques listed within the EP to be updated to align with the associated changes.

A Review of Operating Techniques has been undertaken to identify the required changes, refer to Appendix A. Furthermore, the Environmental Risk Assessment has been updated to allow for any additional environmental risks associated with the revised designs, refer to Appendix B.

A Review of Operating Techniques

Description provided in Table S1.2	Proposed amendments to the Operating Techniques
Information received on 22/03/05	
Form B2, Q - B2.1	No change
Form B2, Q - B2.2.2	The techniques used to minimise emissions from emission point A1 (Waste Incineration Abatement Plant) should be amended to read as: *The site employs a combination of techniques which correspond with the use of BAT.* *Control of feed rates, air flows and temperatures are controlled using a fully automated sequencing combustion control process. This will minimise NOx emissions. Feed stock control, sodium bicarbonate injection and ceramic filters for the treatment of acid gases. Carbon injection and ceramic filters for the removal of dioxins, VOCs and heavy metals. Ceramic filters are used to minimise emissions of particulates.*
Form B2, Q - B2.2.2	The Techniques used to minimise emissions from emission point A2 (Incinerator Emergency Relief Vent) should be amended to read as: *The Emergency relief vent will only operate in the following scenarios:* • *Power failure* • *ID fan failure* • *Boiler water pump failure* • *Boiler low water level fault* • *Boiler over pressure fault* *In any of these scenarios, the stage 3 burner will automatically ignite raising the temperature of the flue gases within stage 3 to in excess of 1,000°C ensuring complete combustion of the flue gases. Simultaneously, the waste feed system will be inhibited to prevent further feed of waste.*
Form B2, Q - B2.2.3	The emission point abatement equipment for emission point A1 (Waste Incineration Abatement Plant) should be amended to read as: *Particulates – Ceramic filter* *VOC's – Control of combustion conditions (furnace, combustion, temperature, feed rate and composition) using a fully automated combustion control system* *Hydrogen Chloride – Sodium bicarbonate injection; Ceramic filter* *Hydrogen Flouride – Sodium bicarbonate injection; Ceramic filter* *Oxides of Nitrogen – Control of combustion conditions (furnace, combustion, temperature, feed rate and composition) using a fully automated combustion control system* *Sulphur Dioxide – Sodium bicarbonate injection; Ceramic filter* *Carbon Monoxide – Control of combustion conditions (furnace, combustion, temperature, feed rate and composition) using a fully automated combustion control system*

Description provided in Table S1.2	Proposed amendments to the Operating Techniques
	Cadmium and Thallium – Ceramic filter *Mercury – Activated carbon injection; Ceramic filter* *Dioxins – Activated carbon injection; Ceramic filter* *Heavy metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V) – Ceramic filter*
Form B2, Q - B2.2.2	The emission point abatement equipment for emission point A2 (Incinerator Emergency Relief Vent) should be amended to read as: *The Emergency relief vent will only operate in the following scenarios:* • *Power failure* • *ID fan failure* • *Boiler water pump failure* • *Boiler low water level fault* • *Boiler over pressure fault* *In any of these scenarios, the stage 3 burner will automatically ignite raising the temperature of the flue gases within stage 3 to in excess of 1,000°C ensuring complete combustion of the flue gases. Simultaneously, the waste feed system will be inhibited to prevent further feed of waste.*
Form B2, Q - B2.2.4	The details of the abatement for specific emission points should be amended to read as: *Alkali injection* *Ceramic filters*
Form B2, Q - B2.2.6	The details of the alkali injection system should be amended to read as: *How old is the equipment – New* *Method of injection – Sodium bicarbonate will be fed from a silo into a scrubber at a predetermined feed rate to abate acid gases from the combustion of the waste.* *Flue gas volume – ~19,000 m^3/hr (actual conditions)* *Inlet acid loading (HCl) – 1,800 mg/m^3* *Flue gas temperature – 220°C*
Form B2, Q - B2.2.6	The details of the ceramic filter system should be amended to read as: *Unique identifier – Ceramic filters* *Flow rate at operating conditions – ~19,000 m^3/hr (actual conditions)* *Inlet dust loading – 5,000 mg/Nm^3* *Gas temperature – 200°C* *Approximate age of equipment – New* *Number of compartments– 1*
Form B2, Q - B2.2.22 and B2.2.23	The emission limits for emission to air stated in response to B2.2.22 and B2.2.23, should be replaced with the emission limits provided in the table below. Refer to the Regulation 61 Response enclosed with this application.

<table>
<tr><th>Description provided in Table S1.2</th><th>Proposed amendments to the Operating Techniques</th></tr>
<tr><td></td><td>
<table>
<tr><th>Parameter</th><th>Units</th><th>Proposed ELV</th><th>Reference period</th></tr>
<tr><td>Particulate matter</td><td>mg/Nm^3</td><td>5</td><td>daily average</td></tr>
<tr><td>VOCs as Total Organic Carbon (TOC)</td><td>mg/Nm^3</td><td>10</td><td>daily average</td></tr>
<tr><td>Hydrogen chloride</td><td>mg/Nm^3</td><td>8</td><td>daily average</td></tr>
<tr><td>Carbon monoxide</td><td>mg/Nm^3</td><td>50</td><td>daily average</td></tr>
<tr><td>Sulphur dioxide</td><td>mg/Nm^3</td><td>40</td><td>daily average</td></tr>
<tr><td>Oxides of nitrogen (NO and NO_2 expressed as NO_2)</td><td>mg/Nm^3</td><td>180</td><td>daily average</td></tr>
<tr><td>Ammonia</td><td>mg/Nm^3</td><td>None</td><td></td></tr>
<tr><td>Cadmium & thallium and their compounds (total)</td><td>mg/Nm^3</td><td>0.02**</td><td>*Periodic over minimum 30 minute, maximum 8 hour period
**Average of three consecutive measurements of at least 30 minutes each</td></tr>
<tr><td>Mercury and its compounds</td><td>mg/Nm^3</td><td>0.02**</td><td>*Periodic over minimum 30 minute, maximum 8 hour period
**Average of three consecutive measurements of at least 30 minutes each</td></tr>
<tr><td>Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)</td><td>mg/Nm^3</td><td>0.3**</td><td>*Periodic over minimum 30 minute, maximum 8 hour period
**Average of three consecutive measurements of at least 30 minutes each</td></tr>
<tr><td>Dioxins & furans</td><td>ng I-TEQ /Nm^3</td><td>0.06</td><td>Periodic over minimum 6 hours, maximum 8 hour period</td></tr>
</table>
</td></tr>
<tr><td>Form B2, Q - B2.2.49</td><td>The details of the controls for fugitive emissions to air should be amended to read as:
Unloading of sodium bicarbonate to silo: The sodium bicarbonate silo is fitted with a bag filter plant to prevent fugitive emissions of dusts during unloading activities</td></tr>
<tr><td>Form B2, Q - B2.2.51</td><td>The details of the controls for the potential fugitive emissions to water should be amended to read as:
Spent APCr storage: APCr will be stored within big bags,. The big bags will be stored within a building/contained area to prevent fugitive emissions to water. In the event of a spill/leak from the big bags, spill response procedures will be implemented, and any spill/leak will be cleaned up and disposed of as hazardous waste.
Sodium bicarbonate storage: Sodium bicarbonate will be stored within big bags. The big bags will be stored within a building/contained area to prevent fugitive emissions to water. In the event of a spill/leak from</td></tr>
</table>

Description provided in Table S1.2	Proposed amendments to the Operating Techniques
	the big bags, spill response procedures will be implemented, and any spill/leak will be cleaned up and disposed of as hazardous waste.
Form B2, Q - B2.2.57	The details of the potential pollution areas should be amended to read as: *Sodium Bicarbonate big bags (Internal storage/contained areas)* *Spent APCr storage (Internal storage/contained areas)*
Form B2, Q - B2.7	No change. However, it is noted that the Operating Techniques refer to the use of fuel oil as the auxiliary fuel. However, this was changed previously, prior to the revised designs, to LPG.
Form B2, Q - B2.10	Medisort is installing a new MCERTS accredited CEMS system. It is noted that the application forms refer to Codel emissions monitoring systems for the continuous monitoring of emissions to air from the Facility. This will be replaced by a CBIS system as part of the implementation of the revised designs. The installation of the new CEMS system will not change the Operating Techniques associated with the continuous monitoring of emissions from the Facility. Furthermore, the periodic monitoring of emission will be undertaken in accordance with the current emission monitoring standards and methodologies, not those referenced in the application forms. It is requested that the references to section B2.10 of the application forms is removed from the Operating Techniques, as they not relevant to the operation of the Facility, and are superseded by the responses provided to the Regulation 61 Notice enclosed with this application.
Information received on 22/03/05	
Application Form F1	It is not clear how the information contained in Application Form F1 can be applied as an Operating Technique for the Facility. Therefore, it is requested that the references to Application Form F1, received on 22/03/05 is removed from the Operating Techniques,

B Environmental Risk Assessment

C Trade Effluent Consent

D Fire Prevention Plan

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