

Compliance with Articles 46, 47 and 48 of the IED

Paragraph 46(1)

Paragraph 46(1) of the IED states that

“1. Waste gases from waste incineration plants and waste co-incineration plants shall be discharged in a controlled way by means of a stack the height of which is calculated in such a way as to safeguard human health and the environment.”

The KEU gas cleaning equipment consists of a two-stage process comprising a condenser/absorber for acid gas removal and a hydrosonic scrubber for particulate and droplet removal. The cooled and cleaned gases are combined with the Regenerative Thermal Oxidiser (RTO) discharge. The heat from the fume thermal oxidiser raises the temperature of the wet gas leaving the scrubbers, preventing a visible steam plume being formed at the stack discharge.

The stack height was designed and calculated in such a way as to safeguard human health and the environment.

Paragraph 46(2)

Paragraph 46(2) of the IED states that

“2. Emissions into air from waste incineration plants and waste co-incineration plants shall not exceed the emission limit values set out in parts 3 and 4 of Annex VI or determined in accordance with Part 4 of that Annex. If in a waste co-incineration plant more than 40 % of the resulting heat release comes from hazardous waste, or the plant co-incinerates untreated mixed municipal waste, the emission limit values set out in Part 3 of Annex VI shall apply.”

ELVs set out in Part 3 of Annex VI to the IED which apply to the KEU incinerator are as follows:

“Part 3: Air Emission Limit Values for waste incineration plants

- 1. All emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correcting for the water vapour content of the waste gases. They are standardised at 11 % oxygen in waste gas.*

Emission Limit Values for the following polluting substances (mg/Nm³)

Substance	Daily Average Emission Limit Value mg/Nm ³	Half hourly average emission limit value mg/Nm ³ (100%A)	Half hourly average emission limit value mg/Nm ³ (97%B)
Total dust	10	30	10
Gaseous and vaporous organic substances, expressed as Total Organic Carbon	10	20	10
HCL (Hydrogen Chloride)	10	60	10
HF (Hydrogen Fluoride)	1	4	2
Sulphur dioxide (SO ₂)	50	200	50
Nitrogen monoxide (NO) and nitrogen dioxide (NO ₂), expressed as NO ₂ for existing waste incineration plants with a nominal capacity exceeding 6 tonnes	200	400	200

Substance	Daily Average Emission Limit Value mg/Nm3	Half hourly average emission limit value mg/Nm3 (100%A)	Half hourly average emission limit value mg/Nm3 (97%B)
per hour or new waste incineration plants			
Nitrogen monoxide (NO) and nitrogen dioxide (NO ₂), expressed as NO ₂ for existing waste incineration plants with a nominal capacity of 6 tonnes per hour or less	400		

Heavy Metal	Average emission limit values (mg/Nm3) over a sampling period of a minimum of 30 minutes and a maximum of 8 hours
Cd	Total: 0.05
Tl	
Hg	0.05
Sb	Total: 0.5
As	
Pb	
Cr	
Co	
Cu	
Mn	
Ni	
V	

Substance	Average emission limit value (ng/Nm3) for dioxins and furans over a sampling period of a minimum of 6 hours and a maximum of 8 hours. The emission limit value refers to the total concentration of dioxins and furans calculated in accordance with Part 2 of Annex VI of council directive 2010/75/EU
Dioxins and furans	0.1

Carbon monoxide (CO)	Emission limit values (mg/Nm3) for in the waste gases
daily average value	50
half-hourly average value	100
10-minute average value	150

ELVs are set for the KEU incinerator (emission point A2-2) in line with the above in Paragraph B.1 Emissions to Air of the current facility licence register number P0009-04. There are no exceedances reported to the EPA since P009-04 was granted in 2016.

ELVs are set for the Thermall incinerator (emission point A2-3) in line with the above in Paragraph B.1 Emissions to Air of the current facility licence register number P0009-04. This incinerator has been demolished but should it be replaced by a new unit it will comply with ELV's associated with emission point A2-3. Paragraph 46(3)

Paragraph 46(3) of the IED states that:

“3. Discharges to the aquatic environment of waste water resulting from the cleaning of waste gases shall be limited as far as practicable and the concentrations of polluting substances shall not exceed the emission limit values set out in Part 5 of Annex VI.”

Part 5: Emission limit values for discharges of waste water from the cleaning of waste gases sets the following ELVs for the facility:

Polluting Substances	Emission limit values for unfiltered samples (mg/l except for dioxins and furans)	
	(95%)	(100%)
1. Total suspended solids as defined in Annex I of Directive 91/271/EEC	30	45
Hg	0.03	
Cd	0.05	
Tl	0.05	
As	0.15	
Pb	0.2	
Cr	0.5	
Ni	0.5	
Zn	1.5	
Dioxins and furans	0.3 ng/l	

ELVs are set for Wastewater from incineration activities prior to mixing with other on-site effluent. (emission point SW2) in line with the above in Paragraph B.2 Emissions to Water of the current facility licence register number P0009-04. There are no exceedances reported to the EPA since P009-04 was granted in 2016.

Paragraph 46(4)

Paragraph 46(4) of the IED states that:

“4. The emission limit values shall apply at the point where waste waters from the cleaning of waste gases are discharged from the waste incineration plant or waste co-incineration plant.

When waste waters from the cleaning of waste gases are treated outside the waste incineration plant or waste co-incineration plant at a treatment plant intended only for the treatment of this sort of waste water, the emission limit values set out in Part 5 of Annex VI shall be applied at the point where the waste waters leave the treatment plant. Where the waste water from the cleaning of waste gases is treated collectively with other sources of waste water, either on site or off site, the operator shall make the appropriate mass balance calculations, using the results of the measurements set out in point 2 of Part 6 of Annex VI in order to determine the emission levels in the final waste water discharge that can be attributed to the waste water arising from the cleaning of waste gases.

Under no circumstances shall dilution of waste water take place for the purpose of complying with the emission limit values set out in Part 5 of Annex VI.”

The ELVs set out in Paragraph 46(3) of the IED are applied at the facility at emission point SW2. This is located prior to mixing with other on site effluent. No dilution of waste water takes place for the purpose of complying with the above ELVs.

Paragraph 46(5)

Paragraph 46(5) of the IED states that:

“5. Waste incineration plant sites and waste co-incineration plant sites, including associated storage areas for waste, shall be designed and operated in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater.

Storage capacity shall be provided for contaminated rainwater run-off from the waste incineration plant site or waste co-incineration plant site or for contaminated water arising from spillage or fire-fighting operations. The storage capacity shall be adequate to ensure that such waters can be tested and treated before discharge where necessary."

The waste incineration plant sites were designed and are operated in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater. No such emissions have occurred as a result of operation of the on-site incinerators in the past.

A firewater risk assessment has been undertaken for the site in accordance with EPA draft guidance. Please refer to Paragraph 9 Environmental Management of this IE Licence review application. This includes provision for contaminated rainwater run-off from the waste incineration plant site and for contaminated water arising from spillage or fire-fighting operations. The storage capacity recommended in the report is adequate to ensure that such waters can be tested and treated before discharge where necessary.

Paragraph 46(6)

Paragraph 46(6) of the IED states that:

"6. Without prejudice to Article 50(4)(c), the waste incineration plant or waste co-incineration plant or individual furnaces being part of a waste incineration plant or waste co-incineration plant shall under no circumstances continue to incinerate waste for a period of more than 4 hours uninterrupted where emission limit values are exceeded."

The cumulative duration of operation in such conditions over 1 year shall not exceed 60 hours.

The time limit set out in the second subparagraph shall apply to those furnaces which are linked to one single waste gas cleaning device."

In the case of abnormal operating conditions, the incinerators will be shut-down as soon as practicable in a manner consistent with safety and the protection of the environment.

Where emission limit values above are exceeded the incineration plant will not continue to incinerate waste for a period of more than 4 hours uninterrupted.

The cumulative duration of operation in such conditions over 1 year shall not exceed 60 hours.

Article 47

Article 47 of the IED states that:

"In the case of a breakdown, the operator shall reduce or close down operations as soon as practicable until normal operations can be restored."

In the case of abnormal operating conditions, waste feed will be immediately shut off and the incinerators will be shut-down in a manner consistent with safety and the protection of the environment.

Article 48

Paragraph 48(1)

Paragraph 48(1) of the IED states that:

“1. Member States shall ensure that the monitoring of emissions is carried out in accordance with Parts 6 and 7 of Annex VI.”

In accordance with Part 6 of Annex VI continuous measurement of the following air polluting substances is undertaken for the KEU incinerator: total dust, TOC, HCl, and SO₂ and NO_x. HF, Heavy Metals and Dioxins are measured bi-annually.

Continuous measurement of the following process operation parameters are undertaken: temperature near the inner wall or at another representative point of the combustion chamber as agreed with the EPA, concentration of oxygen, pressure, temperature. Water vapour of exhaust gas is also measured if gases are not dried prior to analysis.

In accordance with Part 6 of Annex VI continuous measurement of the following parameters are undertaken for wastewater from the cleaning of exhaust gases from incineration activities prior to mixing with other on-site effluent: flow, temperature and pH. Composite sampling of total suspended solids is undertaken daily. Monthly measurements of a flow proportional representative sample of the discharge over a period of 24 hours are taken of Hg, Cd, Tl, As, Pb, Cr, Cu, Ni and Zn. Biannual measurement of dioxins and furans is undertaken.

Waste water from the treatment of waste gases is not treated collectively on site with other on-site sources of waste water.

Where emission concentration at the standard percentage oxygen concentration is required the formula set out in Annex VI Part 7 is used.

Paragraph 48(2)

Paragraph 48(2) of the IED states that:

“2. The installation and functioning of the automated measuring systems shall be subject to control and to annual surveillance tests as set out in point 1 of Part 6 of Annex VI.”

Representative measurements are carried out for determination of concentrations of air and water pollutants. CEN-standards are used where available. Where they are not available ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality are used. Automated measuring systems is subject to control by means of parallel measurements with reference methods at least once per year.

Paragraph 48(3)

Paragraph 48(3) of the IED states that:

“3. The competent authority shall determine the location of the sampling or measurement points to be used for monitoring of emissions.”

Location of sampling and measurement points used for monitoring emissions is set out in the facility licence and as determined and agreed by the EPA.

Paragraph 48(4)

Paragraph 48(4) of the IED states that:

“4. All monitoring results shall be recorded, processed and presented in such a way as to enable the competent authority to verify compliance with the operating conditions and emission limit values which are included in the permit.”

All monitoring results are recorded, processed and presented in such a way as to enable the EPA to verify compliance with the operating conditions and ELVs set out in the facility licence. The annual environmental report for the facility is provided annually to the EPA in the format requested by the EPA.

Paragraph 48(5)

Paragraph 48(5) of the IED states that:

“5. As soon as appropriate measurement techniques are available within the Union, the Commission shall, by means of delegated acts in accordance with Article 76 and subject to the conditions laid down in Articles 77 and 78, set the date from which continuous measurements of emissions into the air of heavy metals and dioxins and furans are to be carried out.”

Should Paragraph 48(5) be implemented by the EU and the EPA the associated IE Licence condition will be complied with by Lilly.

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