



The countryside charity
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15 July 2021

Dear Madam/Sir

Representation submitted for and on behalf of CPRE Sussex:

**RH12 4QD, Britanniacrest Recycling Limited,
Variation application number: EPR/CB3308TD/V002
Environmental Permit Consultation**

Our concerns about this application are explained below.

1. **EA2025 Creating a Better Place**, published 9 July 2020, details the Environment Agency's ambition for how the agency plans to create better places for people, wildlife and the environment. The plan sets out 3 long term goals that will drive everything that Agency does 'today, tomorrow and to 2025':

- A nation resilient to climate change
- Healthy air, land and water
- Green growth and a sustainable future

"They champion sustainable development", support the agency's "work to create better places and challenge" the agency "to tackle the climate emergency and deliver a green economic recovery for everyone" (page 5).

On page 7, it is stated that "Climate disasters already cost the global economy an estimated \$520 billion a year. Building resilience to extreme climate events makes economic sense and helps protect people, wildlife and the environment".

CLIMATE CHANGE

2. However, how emissions from the facility could or would impact on climate change over the lifetime of the facility is neither assessed nor considered in the application. It should be considered and taken into account.

3 Wealden Works 3Rs Permit Variation Application. Application to Vary Permit Reference EPR/CB3308TD Britaniacrest Recycling Limited, 12 October 2020, states that:

*Paragraph 2.4.7 NOx control within will utilise solid urea or ammonium hydroxide as the reagent. **Whilst the reduction reaction of urea gives rise to higher releases of nitrous oxides with corresponding global warming potential (GWP) impacts, urea presents lower handling and storage hazards compared to ammonium hydroxide.** Nitrous oxide has a GWP of 310, compared to carbon dioxide with a GWP of 1. Consequently, the decision is a balance between the increased hazard risks and reagent consumption associated with ammonium hydroxide versus the increased GWP impacts associated with urea.*

Paragraph 2.4.8 Usage of the reagent will be monitored and controlled to minimise ammonia slippage whilst also effectively controlling NOx emissions. Dosing will be linked to flue gas NOx levels and will be alarmed to alert the operator in the event of a problem with the dosing of the reagent.

3.1 'Higher releases', and resultant ramifications for climate change, people and the environment are surely an important consideration in the deciding of this application.

3.2 They should be calculated and quantified for the lifetime of the facility.

4. Wealden Works 3Rs Permit Variation Application Appendix D: Environmental Risk Assessment, 12 October 2020, states, at paragraph 3.1.3, under the heading Potochemical Ozone Creation Potential (POCP), states that:

Paragraph 5.8.1 Releases of carbon monoxide, sulphur dioxide and nitrogen dioxide from the proposals have the potential to give rise the creation of ozone. The total POCP for the ERF is 939.31.

Paragraph 5.8.2 Releases of POCP are discussed in further detail within the ERA in Appendix D, the options appraisals in Appendix G and in Section 6 of this report in support of the selection of the abatement plant for controlling the releases”.

4.1 However, neither Permit Variation Application Appendix D, nor Wealden Works 3Rs Application to Vary Permit Reference EPR/CB3308TD has a Section 6, and neither does Wealden Works 3Rs Permit Variation Application Appendix G: BAT Assessment.

4.2 What quantity of much ozone would be created over the lifetime of the facility?

4.3 What impact would the ozone produced by the process have on climate change?

5. The facility is HGV dependent, and HGVs. The consequences for climate change

of resultant emissions from vehicles travelling to and from the facility should therefore to be a factor in the deciding of the application.

SOME OTHER MATTERS

6. The Wealden Works 3Rs Permit Variation Application. Application to Vary Permit Reference EPR/CB3308TD Britaniacrest Recycling Limited, 12 October 2020, states, at paragraph 4.1.18, under heading Primary NOx measures, that

“Flue gas recirculation (FGR) has been proven to be effective in reducing NOx emissions for some furnace designs. **The decision on including FGR will depend on the final design of the furnace and will be confirmed prior to start of commissioning**”.

6.1 Has the final design of the furnace been finalised? Surely, the final design of the furnace is of considerable importance in the deciding of the application.

7. Appendix 7.5: Predicted Concentrations and Metal Deposition Rates at Discrete Sensitive Receptors states that:

Paragraph 7.5.1 **The maximum predicted Process Contributions (PCs) and the maximum Predicted Environmental Concentrations (PECs) for the five years of meteorological data modelled** are provided in Table 7.5.1 and Table 7.5.2 respectively.

Paragraph 7.5.2 For NO₂ and PM₁₀, the annual-mean PCs are below 1% of the relevant EAL at all receptors (including receptors on Langhurstwood Road). As such, **the impacts can be screened out as insignificant, without consideration of the PEC. Consequently, using the EA on-line guidance, the impacts can be screened out as insignificant, regardless of the background concentration.**

7.1 However, what would the deposition rates and concentrations be over the lifetime of the facility?

7.2 What would the consequences be for people and the environment?

8. Appendix 7.7: predicted Concentrations at BAT Conclusions Emissions Levels predicts ground-level concentrations for emitted pollutants for each of the five years of meteorological data (2011 to 2015) and concludes that the impacts are “not considered significant”.

8.1 The assessment, however, seems not to have considered the cumulative impacts of ground-level concentrations of persistent toxins and resultant impacts on people and the environment over the lifetime of the facility.

9. Britanniacrest Recycling Limited Wealden Works Recycling, Recovery & Renewable Energy Facility: Human Health Risk Assessment, September 2020, states at 2.4.3 Emission Concentrations for the COPCs that

“For the purposes of the exposure assessment, the congener profile for the proposed facility is presented in Table 2.1, **which is a standard profile for municipal waste incinerators derived by Her Majesty’s Inspectorate of Pollution (HMIP), one of the predecessors of the Environment Agency**. The international toxic equivalency factors are given and used to derive the toxic equivalent emission (I-TEQ). It is assumed that PCDD/F emissions are 0.1 ng I-TEQ Nm-3 (reference conditions 273K, dry and 11% O2).

9.1 How the standard profile was determined is not explained, the source of the profile is not referenced and the risk assessment does not have a bibliography.

9.2 The justification for assuming that ‘PCDD/F emissions are 0.1 ng I-TEQ Nm-3’ is not explained. It should be explained.

10. **Toxicity data for pollutants that would be emitted by the facility seems not to have been included in the application bundle.**

10.1 Predicted pollutants that could or would be emitted by the facility are given in Volume 1, Chapter 7, Air Quality and Odour, and in Appendix 7.5: Sensitive Receptor Results. According to these documents they are:

Nitrogen dioxide, Carbon monoxide, Sulphur dioxide, Particulates, Hydrogen chloride, Hydrogen fluoride, Arsenic, Antimony, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Thallium and Vanadium.

10.2 Toxicity data should be provided and considered in the deciding of the application.

10.3 How the mix of the various pollutants might impact cumulatively over the lifetime of the facility on human health and the environment should be considered and assessed.

A CASE STUDY

<https://www.airenet.eu/tag/zero-waste-europe/>

11. We draw your attention to the case study by Zero Waste Europe, of the Dutch incinerator: Restoffen Energie Centrale (Hidden Emissions: A story from the Netherlands. ToxicoWatch/Zero Waste Europe, November 2018). We consider that the findings are relevant to the application. The case study advises that:

“Out of the 13 waste incinerators currently in operation in the Netherlands, the Restoffen Energie Centrale (REC) is the most recent one. The so-called waste-to-energy plant is located in Harlingen, bordering the UNESCO Wadden Sea coastline in the North of the Netherlands. When it was built in 2011, it was proudly announced by the Dutch Ministry of Economic Affairs as ‘a state of the

art' installation, the best in Western Europe. However, long-term testing revealed the plant emits dioxin, furans and toxic pollutants far beyond the limits set by EU laws." And that

"Chemical analyses to check the waste input were first undertaken at the start in 2011. It is debatable whether this installation with a post combustion temperature of 850 degrees Celsius is actually capable of combusting the chemical complexity of current 'household' and industrial waste".

11.1 Is the facility capable of combusting the chemical complexity of the waste listed in their Waste Accepted document, without harm to people and the environment?

11.2 Please note the case study's findings:

Environmental biomarkers and toxic eggs:

"In 2013, a study by ToxicoWatch found high concentration of dioxins and furans² in eggs of backyard chickens in the surroundings of the REC incinerator³ 4. Eggs of backyard chickens are sensitive environmental biomarkers for persistent organic pollutants (POPs) like dioxins⁵. All eggs of backyard chickens in Harlingen, sampled within a radius of 2 km from the REC incinerator, showed a much higher concentration of dioxine than allowed by the EU⁶. Notably, the concentration exceeded 1.7 BEQ/gram fat (Bioanalytical Equivalent)⁷, and the 2.5 picogram TEQ/gram fat⁸ limit set by EU law.

This means that potentially highly toxic dioxins exceed the maximum limit for consumption of eggs in the environment of Harlingen.

A subsequent national survey⁹ found 50 % of the backyard chicken eggs in the Netherlands were below the maximum limit for dioxins in eggs. However, around the incinerator (Figure 1) all eggs are exceeding the limit for dioxins of 2.5 picogram TEQ/gram fat¹⁰"

A study of dioxin depositions on grass in the direct surroundings of the REC incinerator (see Figure 2) confirms elevated values of dioxins. Moreover, the fingerprints of these dioxins found on grass comply with the congeners found in the flue gases of the incinerator¹¹, tracking the source of dioxin contamination to the emissions of the incinerator.

Dioxine emissions: long-term sampling reveal breaches

Long-term sampling is not mandatory for waste incineration facilities, that mostly rely on preannounced short-term sampling of 6-8 hours twice a year. After the alarming findings of dioxins in eggs of backyard chickens in the ToxicoWatch study, the local government decided, for the first time in the Netherlands, to perform long-term sampling of flue gases in the REC with the AMESA technique, which stands for Adsorption MEthod for SAMpling of dioxins¹².

When short- and longterm sampling are carried out in the same period, remarkable differences become visible (Table 1). The results show that short-term sampling seriously underestimates actual dioxin emission levels by factors of 460 - > 1290 (Table 1). The current short-term sampling only represents ~0.2 % of the total yearly operating time, so short-term sampling cannot be considered representative for real dioxin emissions of the REC incinerator¹³

Announced and presented as “State of the art” and applying with Best Available Techniques /Best Environmental Practices ¹⁵, the REC incinerator has a very stringent emission limit of 0.01 ng TEQ/Nm³¹⁶. In Figure 3, a number of excursions above the legal threshold limit can be noted. The horizontal lines indicate from bottom to top the short-term measurements, emission limits set for the REC in the environmental permit, as well as in the permit by the Integrated Pollution Prevention and Control (which is now the IED, International Emission Directive¹⁷).

A total number of 12 start-up and shutdown events occurred in the measuring period. The permitted limit of 0.01 ng TEQ/Nm³ was exceeded seven times, and the IED standard of 0.1 ng TEQ/Nm³ twice. As the exceeding of dioxin emissions occurred mostly during start-ups, this ‘posed no legal problem’ for the facility because the norms are stipulated to ‘apply only to steady state operation’.

From the very first start-up of the incinerator in Harlingen in 2011, more than 60 start-ups and shutdowns have been (officially) registered. In August 2015 the continuous sampling programme of flue gases for dioxin monitoring AMESA was implemented, but in December 2017 the plant management terminated this long-term sampling program for unstated reasons. With this decision, the management ignored the wish of both the local government and the concerned population to continue AMESA monitoring.

Hidden emissions

One of the reason why the REC incinerator exceeds the dioxins permit levels is the use of bypasses during transient phases, which means that the incinerator emits without filtering (Figure 4). In the technical literature this is known as a ‘filter bypass mode’, ‘abatement bypass’ or ‘dump stacks’. The bypass mode is structurally programmed whenever elevated dust emissions occur. Although the plant management had recently promised to stop using bypasses, data do not confirm this has actually happened”.

To conclude, we ask that the application be refused.

Yours faithfully,

Dr R F Smith DPhil, BA (Hons), FRGS
Trustee CPRE Sussex

Copy to Director CPRE Sussex