CiNER Glass Ltd.

Dragon Glass Bottle Manufacturing Facility

Air Quality Clarification Note

Issue

Issue | 14 January 2022

Job number 273927-02

Ove Arup & Partners Ltd
8 Fitzroy Street
London
W1T 4BJ
United Kingdom
www.arup.com

Document verification

Job title		Dragon Glass Bottle Manufacturing Facility			**Job number** 273927-02
Document title		Air Quality Clarification Note			**File reference**
Document ref		Issue			
Revision	**Date**	**Filename**	AQ post submission response.docx		
Draft 1	21 Dec 2021	Description	First draft		
			Prepared by	Checked by	Approved by
		Name			
		Signature			

2 Stack height assessment

A stack height assessment was carried out at two phases of the design phase for the proposed development. The first stack height calculations were based on a proposed design which included two furnace lines (one with 500 tonnes of daily output the other with 700 tonnes) (design option 1). The details of this design option were provided in the methodology note sent to Blaenau Gwent County Borough Council (see Environmental Statement Volume II Appendix B1.1 for the full method note). The second set of calculations were provided for the final design submitted for planning with two furnaces both at 500 tonnes (details of the modelled parameters are provided in Environmental Statement Volume II Table B2.11).

2.1 Method

2.1.1 Pollutants included in the stack height assessment

The pollutants included in the assessment were nitrogen dioxide (NO_2), particulate matter (PM_{10}) and sulphur dioxide (SO_2), they are selected to be part of the stack height assessment as they cover all the averaging periods considered in the assessment:

- Annual mean NO_2;
- 99.79^{th} percentile hourly NO_2;
- 90.41^{th} percentile 24-hour mean PM_{10}; and
- 99.9^{th} percentile 15-minute mean SO_2.

2.1.2 Furnace parameters

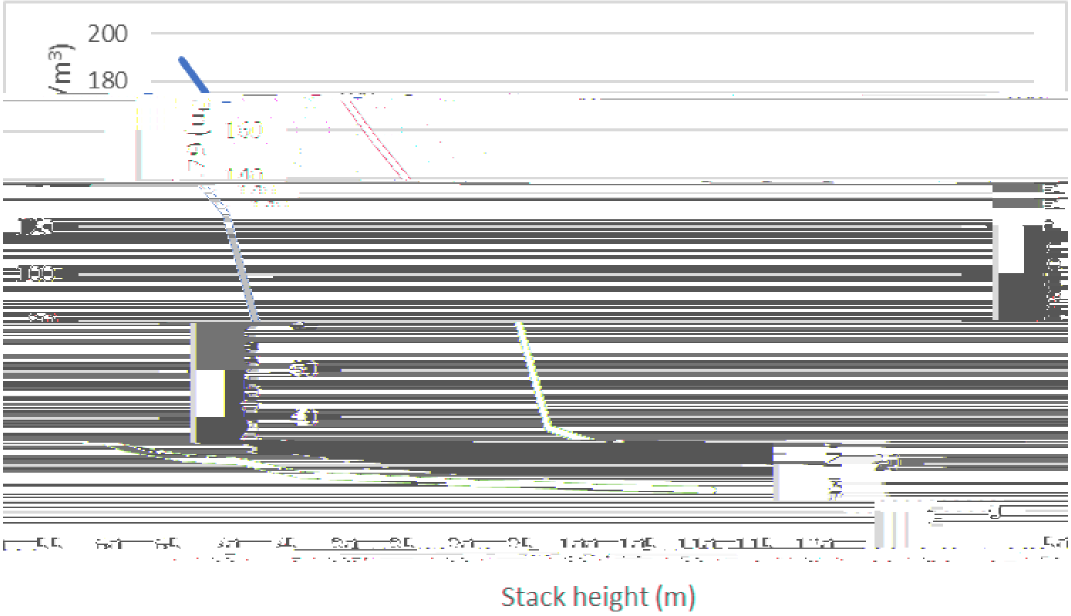
As noted above the furnace parameters changed during the design process and each of the two stack height assessments included the relevant furnace parameters as detailed in the Environmental Statement Volume II.

2.1.3 Dispersion model set up

The dispersion model set up, confirmed that both sets of stack height assessment were similar and both included proposed buildings, terrain and the wind turbine. 2018 meteorological data for Sennybridge was used.

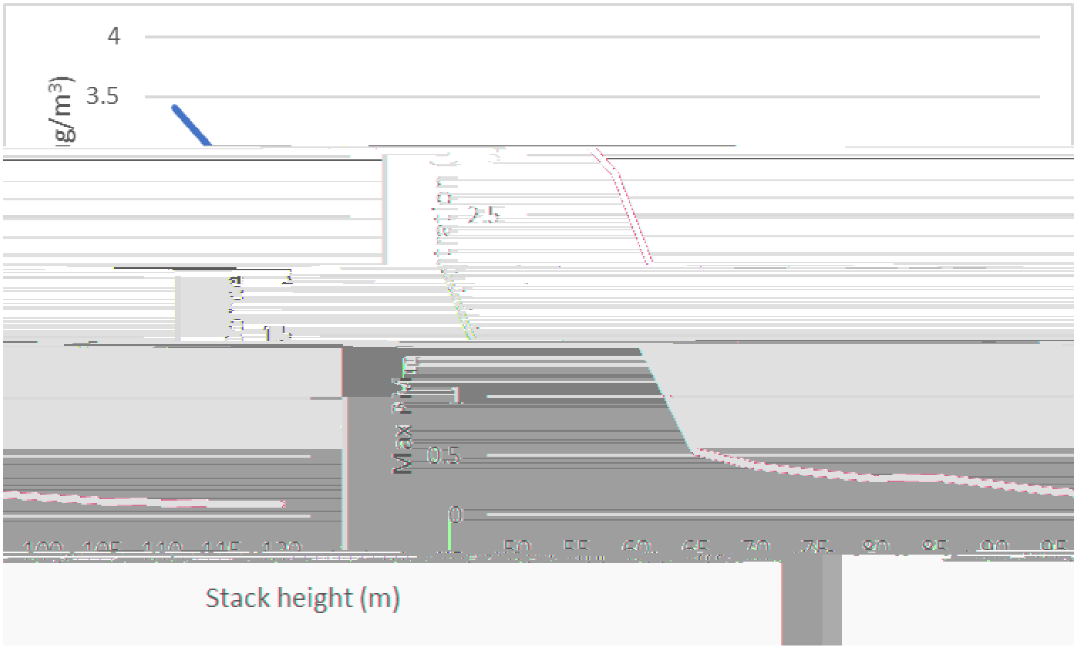
Full details of the model set up are provided in the Environmental Statement Volume II.

99.79th 3)



PM_{10}

90.41th percentile 24 hour mean PM_{10} 3)



SO_2

99.9th percentile 24 hour mean SO

6 Response to technical review

The following table provides a response to the technical review carried out by Ricardo. The significance or priority level they provided is shown in brackets (the details of the classification are provided on page 2 of the Ricardo review)[2]. Where there are no comments and the method is agreed those have not been added to the below table as no response is required.

Aspect of review	Ricardo Clarifications and Recommendations	Applicant Response
Confirming that all pollution sources, pollutants and their relevant air quality standards, guidelines or Environmental Assessment Levels have been identified and appropriately quantified.	It is recommended that an assessment of operational fugitive emissions is provided by the applicant including any mitigation measures that will be applied to ensure that these are minimised (AQ1) (Medium).	Fugitive emissions from any on-site material handing processes would be managed via best practice material handling procedures. The cullet (broken glass-2(g01y5/F2 9/F2 9.b448.43 13:

Appendix A

TecoGlas equipment information

modules on-line and maintain compliance with air emission limits. This opens the possibility to year-round operation with zero downtime.

Each module has an optimized flow distribution which is essentially at a CCF. The raw gases enter the upper hopper section of the module assembly and encounters a set of ladder vane baffles, these baffles remove the large particulate and distribute the flue gas evenly across the filters. This reduces wear on the filters and extends the filter lifetime. The filters are arranged in a way to reduce

breakage. That ultimately reduces the wear on the filters and extending the filter lifetime.

As the flue gas flows from the outside into the inside of the candle, particulate is collected on the outside surface of the candle.

The cleaned flue gas flows out the top of the candle through an opening in the tube sheet. Upon exiting the candle, the cleaned flue gas enters a clean air plenum and passes from the module through an outlet damper.

Each module has a removable top lid to provide easy access to change/inspect the filters. Instead of an entry through a clean air plenum with confined space the entry is from the top, in a well-lit and ventilated area (penthouse enclosure), this will reduce maintenance time and system down time and avoids working in confined space.

The pulse pipes for the cleaning system are fixed to the top lid assembly not to the framework, this eliminates the possibility of misalignment of the pulse pipes which could damage the filters and is easy to maintain.

The dust, removed by the pulse air system from the candles surface, falls into hoppers, installed at the bottom of the filter and is removed from there with appropriate equipment.

The filter itself is mounted on a steel structure. Stairs and walkways provide easy access for service and maintenance.

The CCF is thermally insulated on all sides and clad in sheet metal.

A1.1.4 Reduction of nitrogen oxides

The reduction of the nitrogen oxides is affected with the SCR-process (selective catalytic reduction). A 90% reduction will be achieved from the process.

For this purpose, the hot waste gases passing the catalytic candles. Ammonia water solution is added which splits into ammonia and water in the hot waste gas. The nitrogen oxides change to nitrogen and steam in the catalyst candles and are reduced according to the following totals formula:

4 NO	+	4 NH3	O2	+	4 N2	+	6 H2O
2 NO2	+	4 NH3	O2	+	3 N2	+	6 H2O