

Doc B2.7.3 Environmental Risk Assessment H1 annex (f) Air emissions

Emissions and receptors

The installation houses 9 separate combustion activities burning natural gas in packaged plant with aggregated thermal input of approximately 4MW ranging from <0.1 to 2.4MW (Table 1). Nifes Consulting Group were contacted to determine the velocity, volumetric flow of the flue gases and measure the emissions of oxides of nitrogen and carbon monoxide (Appendix 1). All the combustion activities were measured on high fire and assessed using a worse-case scenario operating at on high fire every working day (Monday to Friday excluding bank holidays).

Estimate short and long term emissions of nitrogen dioxide (NO₂) appear to be significant with levels of 800 and 61µg/m³ respectively. Predicted short term emissions may exceed the hourly statutory limit of 200µg/m³ (Tables 2-3 & 5-6). The assessment has used the lowest dispersion factor for 0m high stacks on account all the flues are on the factory roof and less than 3m above the building. Using the dispersion factor in the assessment methodology for a 10m high emission point, which is similar to the actual height from the ground, and reducing using emissions from the smaller Babcock Wanson boiler to idling on 10% fire (normal practise) significance is substantially reduced (Tables 7 & 8). Both short and long term emissions are predicted to be lower than statutory limit but significance is high at 50.27 and 5.55% compared to 10 and 1% criteria in H1 methodology.

There are sites of special scientific interest within 2km and special protection areas (SPAs) and special areas of conservation (SACs) or Ramsar sites within 10km north-west of the installation. Nitrogen dioxide emissions have been assessed on their potential to cause ecological harm using the lower environmental assessment level of 30µg/m³, compared to the statutory 200µg/m³ limit (Tables 9 & 10). Short and long term emissions are significant. There are no air quality management zones in the vicinity.

The risk of environmental impact from relatively small emissions from plant less than 20MW from point sources and short stacks is not normally considered to warrant detailed dispersion modelling, according to the H1 methodology and significant changes to combustion activities are planned. Existing steam boilers are to be replaced during 2011 on account output is inadequate to meet needs of new cooking plant. Total aggregated thermal input of all the combustion activities will remain similar and less than 20MW with small point sources and short stacks. Replacement boilers will be more efficient and selected from the DECC Technology List to be eligible for HMRC enhanced capital allowance. The operators are aware this will require a permit variation and emissions data and assessment will be required.

Short and long term emissions of carbon monoxide are not significant (Tables 3-5).

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