

KEMSLEY K4 PREDICTED CONCENTRATIONS COMPARED TO ENVIRONMENT AGENCY SCREENING CRITERIA

- 1.1 The Air Quality chapter of the Kemsley K4 Environmental Statement (ES) prepared to support the planning application used the significance criteria in Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) *Land-Use Planning & Development Control: Planning for Air Quality* guidance.
- 1.2 This note compares the predicted concentrations with the screening criteria in the Environment Agency's online guidance entitled '*Environmental management – guidance, Air emissions risk assessment for your environmental permit*' [i] to support the permit application.
- 1.3 The on-line Agency guidance is for risk assessments and provides details for screening out substances for detailed assessment. In particular, it states that:
- "To screen out a PC for any substance so that you don't need to do any further assessment of it, the PC must meet both of the following criteria:*
- *the short-term PC is less than 10% of the short-term environmental standard*
 - *the long-term PC is less than 1% of the long-term environmental standard*
- If you meet both of these criteria you don't need to do any further assessment of the substance. If you don't meet them you need to carry out a second stage of screening to determine the impact of the PEC."*
- 1.4 It continues by stating that:
- "You must do detailed modelling for any PECs not screened out as insignificant."*
- 1.5 It then states that further action may be required where:
- *"your PCs could cause a PEC to exceed an environmental standard (unless the PC is very small compared to other contributors – if you think this is the case contact the Environment Agency)*
 - *the PEC is already exceeding an environmental standard"*
- 1.6 The results of the detailed modelling presented in the ES chapter have been compared with the Agency's screening criteria and used as follows:
- The effects are not considered significant if the short-term PC is less than 10 % of the short-term Air Quality Assessment Level (AQAL) and the long-term PC is less than 1 % of the long-term AQAL; and
 - The effects are not considered significant if the PEC is below the AQAL.
- 1.7 The Air Quality Assessment Level refers to the AQS air quality objective and the EU limit value and is the relevant environmental standard.

Short-term Impacts

- 1.8 Table 5.18 of Chapter 5 of the ES is reproduced below. The ES chapter explains that Table 5.18 “summarises the highest predicted short-term PC for NO₂ and CO anywhere across the modelled grid. As two stack layouts for the CHP were modelled the results presented throughout this chapter are for stack location 1 with the results for stack location 2 shown in brackets. The PEC is the K4 PC added to the background AC and the modelled contributions from K2 and K3. As set out in Section 5.5, the AC is a conservative estimate as, if K4 does not proceed, K1 would be upgraded to meet IED emission limits.”

Averaging period (Pollutant)	AQAL (µg.m ⁻³)	Max PC (µg.m ⁻³)	Max PC as % of AQAL	Max PEC (µg.m ⁻³)	Max PEC as % of AQAL	Impact Descriptor	Potentially Significant Yes/No
1 hour 99.79 th percentile (NO ₂)	200	3.6 (3.8)	2 (2)	73.3 (73.4)	37 (37)	Negligible	No
Maximum daily running 8 hour mean (CO)	10,000	18.9 (20.0)	2 (2)	564.0 (564.4)	6 (6)	Negligible	No

Table 5.18: Highest Predicted Short-term Process Contribution (µg.m⁻³)

- 1.9 As the maximum PC for short-term NO₂ and CO is less than 10% of the AQAL the impacts can be screened out as insignificant using the Agency’s criteria.

Long-term NO₂ Impacts

- 1.10 Table 5.21 of Chapter 5 of the ES is reproduced below. The ES chapter explains that Table 5.21 of the ES “summarises the highest long-term PEC anywhere across the modelled grid. The PEC is the K4 PC added to the background AC and the modelled contributions from K2 and K3. The assessment can be considered conservative as emissions from K1 and K2 are already included to an extent within the background concentration and, by including K1 and K2 explicitly within the model, there is potential for double-counting of the impacts. As set out in Section 5.5, the AC is a conservative estimate as, if K4 does not proceed, K1 would be upgraded to meet IED emission limits. The EPUK & IAQM long-term impact descriptor is also shown.”

Averaging period (Pollutant)	AQAL (µg.m ⁻³)	PC (µg.m ⁻³)	PC as % of AQAL	Max PEC (µg.m ⁻³)	Max PEC as % of AQAL	Impact Descriptor	Potentially Significant Yes/No
Annual mean (NO ₂)	40	0.58 (0.60)	1 (2)	33.0 (33.1)	83 (83)	Negligible (Slight)	No

Table 5.21: Highest Long-term Predicted Environmental Concentrations

- 1.11 For stack location 1, the maximum PC does not exceed 1% of the AQAL and the impacts can be screened out as insignificant based on the PC alone.
- 1.12 For Stack Location 2, the maximum PC exceeds 1% of the AQAL and the impacts are potentially significant. However, when the K4 PC is added to the AC and the PCs from the existing K2 and K3, the maximum PEC is only 83% of the AQAL and the impacts can be screened out as insignificant.

Conclusion

- 1.13 On that basis, using the Agency’s screening criteria, the effects are not significant.

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- i Environment Agency 2016, Environmental management – guidance. Air emissions risk assessment for your environmental permit. .gov.uk website: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#environmental-standards-for-air-emissions>.