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R100 LTD

APPLICATION TO VARY PERMIT EPR/GP3439QK

HABITATS RISK ASSESSMENT

NOVEMBER 2022

wardell armstrong

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DATE ISSUED:	**NOVEMBER 2022**
JOB NUMBER:	**ST19734**
REPORT NUMBER:	**RPT 004**
VERSION:	**V1.0**
STATUS:	**FINAL**

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NOVEMBER 2022

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1 INTRODUCTION

1.1.1 R100 Ltd have commissioned Wardell Armstrong to prepare an application to vary the permit for their site at Spaldington Airfield, permit number EPR/GP3439QK.

1.1.2 The site is located in East Yorkshire at the following address, Spaldington Airfield, Spaldington, Howden DN14 7NG. The permit was issued on 21st October 2019. The business has developed since then and as a result a number of variations need to be made to the permit.

1.1.3 The site operates as an anaerobic digestion facility, generating biomethane (gas) for the National Grid and a PAS 110 compliant digestate, which is sold to local farmers for use as a soil improver.

1.1.4 The site is in a mainly agricultural area, largely surrounded by fields, though there are other waste sites to the west and a wind farm to the east.

1.1.5 There are a number of BAP priority habitats lying between 100m and 2km from the site.

1.1.6 This report considers the impact of changes to the permit on these protected areas.

2 PROTECTED HABITATS

2.1.1 There are no SACs, SPAs, Ramsar sites, SSSIs, or nature reserves within 2km of the site, with the nearest SSSI being the River Derwent, just over 3km to the west. There are however a number of areas of BAP priority habitat, including floodplain grazing marsh and deciduous woodland, nearby, the nearest area lying approximately 100m south of the permit boundary.

2.1.2 The site has formerly been permitted for emissions to air from two CHP units burning biogas. The current application will lead to lower emissions to air. As the biogas CHP units were fully assessed at the time of the application and shown to have insignificant emissions, it is not considered necessary to consider habitats more than 2km form the site in relation to this variation.

3 CHANGES TO THE PERMIT

3.1.1 The permit variation includes the following changes to the operations on site.

- Change of fuel for the CHP that powers the plant on site, from biogas to natural gas, which is likely to be sustainable gas, sourced from the gas to grid plant on site (i.e of biological rather than fossil fuel origin).
- Installation of a liquid natural gas tank for use with the CHP.
- Installation of a centrifuge to separate oils from food waste.
- Installation of a tank to store the bio-oil pending removal from site for recycling at another permitted facility.
- Installation of a diesel generator to act as a back-up and supply power to the plant when the natural gas CHP is down for maintenance. This will operate for less than 500 hours a year.

3.1.2 A battery unit will also be installed but this does not need to be included in the permit as it is fully sealed and contained and there can be no emissions from the battery.

4 POTENTIAL FOR HARM

4.1.1 The protected habitats might be vulnerable to emissions of nutrient or acid deposition or to toxic contamination arising from the site. These might reach the woodland or grazing marsh via emissions to water or leaching through soils or via emissions to air.

4.2 Emissions to Air

4.2.1 The permit variation is expected to reduce emissions to air, compared to the currently permitted activity. The main CHP will no longer run on biogas but instead will operate using natural gas. Natural gas is a cleaner fuel.

4.2.2 The current permit conditions set emission limits of 250mg/m^3 for oxides of nitrogen and 40mg/m^3 for sulphur dioxide. Because natural gas contains fewer impurities there should be negligible or no emissions of sulphur dioxide from the new CHP engines.

4.2.3 New gas engines will be used on site and emissions of oxides of nitrogen may also be reduced as the MCPD standards for new CHP engines operating with natural gas are tighter than those for biogas with a limit of 95mg/m^3 as opposed to 190mg/m^3 (when measured at 15% oxygen).

4.2.4 Both oxides of nitrogen and sulphur dioxide contribute to acid deposition which can damage plants. Nitrogen oxides may also contribute to nutrient deposition.

4.2.5 The standby generator may emit some particulates, sulphur dioxide and oxides of nitrogen. However, this is not expected to have any significant impact as it will operate for less than 500 hours a year.

4.2.6 Overall it is expected that the permit variation will lead to lower emissions to air from the installation and therefore there should be no impact on protected habitats as a result of this change.

4.3 Emissions to Water

4.3.1 No additional wastes are to be received on site as a result of this variation. The variation does place an additional step in the treatment process. That is, the separation of bio-oil from other food wastes for recycling, using a centrifuge that will treat waste from the heat exchanger feed line before the remaining food waste is passed to the pasteuriser and onto the digesters.

4.3.2 The centrifuge and oil tank will be of suitable construction and will be fully bunded, ensuring that should there be a leak from the tank all bio- oils are fully contained. The secondary containment provided will ensure that no oil is able to reach groundwater or surface water, which might provide a pathway to protected habitats.

4.3.3 The diesel tank will also be constructed to conform to the relevant British Standard and will be provided with adequate bunding.

4.3.4 Bunds will be capable of holding at least 110% of the capacity of the tank or treatment vessel within them.

4.3.5 All plant and tanks on site are subject to planned preventative maintenance and will be inspected on a regular basis to ensure they are fit for purpose. Damaged equipment will be taken out of use until it can be properly repaired by a competent person.

4.3.6 Diesel will be delivered and bio-oil will be collected by road tanker following the existing procedures for tanker loading. This means all connections will be checked before loading/unloading commences and loading will be supervised, allowing any leak to be detected at the earliest opportunity. Where there is a leak, filling will cease until the issue can be resolved.

4.3.7 The capacity of the receiving tank will be checked before loading/unloading commences, ensuring that overfilling is prevented.

4.3.8 These measures will provide protection of surface water and groundwater.

5 CONCLUSION

5.1.1 The variation to the permit should result in slightly lower emissions to air, compared with the existing permitted activities, meaning that there will be no impact on protected habitats nearby from emissions to air.

5.1.2 There could be a risk of leaks or spillages of bio-oils to soils, groundwater or surface water. These materials are bio-degradable but could pose a short term risk of pollution. Diesel could cause a slightly higher risk to the environment, were it to reach surface water or groundwater.

5.1.3 To prevent these risks the measures in place on site include suitable tanks for all potentially polluting liquids. These will be built to a recognised standard with adequate bunding providing secondary containment. Written procedures are in place for filling and emptying of tanks and inspection and maintenance of all site infrastructure. These controls will ensure that no polluting liquid leaves the site.

5.1.4 The variation of the application should therefore have no impact on protected habitats.

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