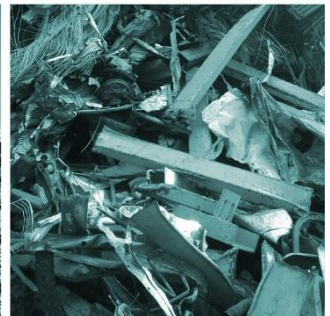
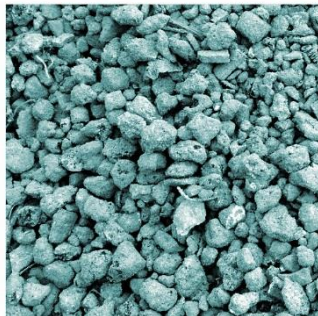
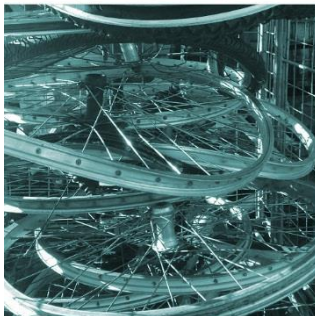
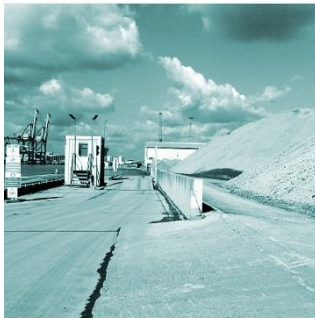
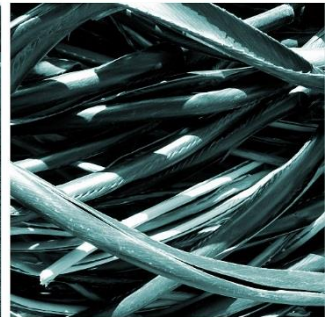
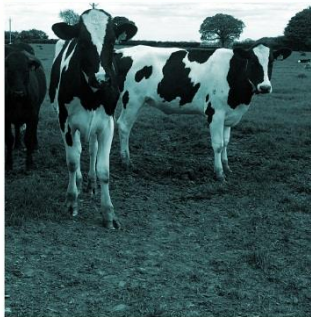


BROCKLESBY LIMITED

PERMIT VARIATION

Non-Technical Summary
June 2021



Client: Brocklesby Limited
Document Reference: HC1676-06

REPORT SCHEDULE

Client: Brocklesby Limited

Operator: Brocklesby Limited

Project Title: Brocklesby Limited – Permit Variation

Document Title: Non-Technical Summary

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Project Team: Jo Chapman

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CONTENTS

1. Non-Technical Summary1

1. NON-TECHNICAL SUMMARY

1.1. Non-Technical Summary

- 1.1.1. Brocklesby Limited operates a fats processing plant, also referred to as the Brocklesby Fatty Acid Methyl Ester (FAME) plant at Crosslands Lane, North Cave, East Riding of Yorkshire, HU15 2PG, NGR SE 88124 32281. The site processes used edible cooking oil and fatty food wastes and has been in operation at North Cave, on the site of a former aluminium smelting works, since 1997.
- 1.1.2. The processed oils and fats are sent on for use in biofuels and energy generation, and residual oils and water arising from the process are sent for use as Anaerobic Digestion (AD) feedstocks.
- 1.1.3. The site has the capacity to process up to 225,000tpa of non-hazardous wastes by heat treatment, physical treatment (centrifuge), chemical treatment (pH correction), or via the pre-esterification process. The final products from these treatment processes are sent for use as biodiesel, energy generation, or as AD feedstocks. The maximum daily processing capacity at the site is 975t.
- 1.1.4. The pre-esterification plant has the capacity to process up to 50,000tpa of non-hazardous wastes received at the site. This activity is listed under Section 4.1 A(1) (a) (ii) of Schedule 1 of the Environmental Permitting Regulations.
- 1.1.5. Waste fats and oils (UCO/Used Cooking Oil) are received at the site in 10gm butter portions, retail packs of spreads, 20l, 60l, 120l, 200l drums as well as IBC's and bulk liquid tankers. Other solid food waste arrives on site in sealed skips, IBC's, roll on roll off skips, and bulk tipping trailers. The other solid food waste material received in bulk containers is taken to a reception area and tipped into a contained bund.
- 1.1.6. Liquid wastes arriving at the site by tanker are received via the 'in' weighbridge and directed to the tank farm delivery point for offloading. The site operates a one-way traffic movement system where vehicles enter via one 'in' weighbridge and exit via a second 'out' weighbridge.
- 1.1.7. The tank farm consists of sixteen 150 tonne tanks, each 3.8m in diameter and 14.5m in height. There are also four 500 tonne tanks, each 8m in diameter and 10m in height. The tank farm has a total operational capacity of 4,400 tonnes. The tank farm is used to store incoming wastes as well as intermediate wastes awaiting further processing. Final waste materials that are awaiting dispatch for further use/recovery and potentially surface water prior to treatment and release or use within the process are also stored in the tank farm.
- 1.1.8. The tank farm is contained in a suitably sized and constructed bund that provides containment for potential spills from tankers during deliveries as well as adequate containment in the event of catastrophic tank failure.
- 1.1.9. Wastes are treated at the site to recover oils for further use via various combinations of heat treatment, physical treatment, chemical treatment, and via the pre-esterification process.
- 1.1.10. Wastes are heated to achieve separation of oils from the non-oil and water component of the wastes. Heat for treatment of wastes is generated by two 10 tonne per hour capacity, 10 bar gas fired steam boilers, which operate on natural mains gas. The operation also receives heat generated by a CHP engine which is located within the permitted area of the adjacent anaerobic digestion facility and operates on biogas generated at the site.
- 1.1.11. Physical treatment is carried out via centrifuging of heated wastes to further accelerate separation of oils and non-oil component/water fraction.

- 1.1.12. Chemical treatment is also carried out to achieve separation and recovery of oils from the waste food. The chemical treatment carried out is pH correction, where sulphuric acid is added to the liquid food wastes and then centrifuged to achieve final separation of the oil and non-oil fraction and water mix. The oil element arising from this chemical treatment process is then further processed in the onsite acid esterification plant.
- 1.1.13. In the acid esterification plant, fatty acid wastes are received to site in bulk tanker and stored in bulk storage tanks or generated as intermediaries from other processing activities at the site. The feedstock wastes are processed with sulphuric acid and methanol to convert the fatty acids to methyl esters and leaving the triglycerides as is. Once the fatty acids have been processed the material is suitable for use as a biodiesel.
- 1.1.14. The tank farm and various process buildings and tanks are fitted with a range of odour abatement measures intended to manage potential impacts from operations.
- 1.1.15. Other point source emissions to atmosphere arise from the stacks on the two boilers, the vent from the vapour adsorber associated with the acid esterification plant, vents from the extraction system installed in the waste reception and processing building, and displaced air vents from other external tank operations at the site.
- 1.1.16. Overall process monitoring and data collection is achieved by a central Supervisory Control and Data Acquisition (SCADA) system which staff can monitor from a central control point.
- 1.1.17. Surface water arising from the site is discharged to swale via a single release point. Quality of surface water discharged is monitored in accordance with BAT requirements using the onsite lab facility.
- 1.1.18. Surface water is discharged via a continuous gravity feed with periodic monitoring of water quality against set benchmark thresholds.
- 1.1.19. Domestic sewage is discharged to the main foul sewer in the control of the local water company. The operator also has a trade effluent discharge consent to allow controlled discharge of boiler blowdown water to foul sewer.
- 1.1.20. The operator has included a number of water and energy efficiency saving measures at the site, including installation of solar panels with the capacity to supply 110kw to the site grid, and more efficient boilers including a reverse osmosis (RO) process which allows for efficiencies of water usage and re-use of condensate.
- 1.1.21. The whole site is operated in line with an Environmental Management System that outlines the appropriate measures to be implemented at the site to achieve permit compliance and to manage potential impacts to the environment which might arise from operations.



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