



# MURROW AD PLANT LTD PERMIT VARIATION APPLICATION MARCH 2023

## List of Raw Materials

Prepared for  
Murrow AD Plant Ltd

# REPORT SCHEDULE

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**Project Director:** Sophie Swan, Operations Manager, Adapt Biogas

**Project Manager:** Jo Chapman (Chapman Beck Limited)

AUTHOR	DATE
Jo Chapman	22.09.22

REVIEWER	DATE
Sophie Swan	29.03.23

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## Revision History

DATE OF REVISION	NEW VERSION	REASON FOR CHANGE	APPROVED
12.02.24	V2.0 FINAL	Update application at duly making due to change scope of variation	Murrow AD Plant Ltd. 16.02.24

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## 1. LIST OF RAW MATERIALS

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
Fuels and Oils – Engine Oil	5,000 litres	CHP engines.	Toxic to animals and humans. Can have long term, persistent impacts if areas of land or water become contaminated following uncontrolled release. Also, direct physical impact on aquatic environment if lost to sewer, via exclusion of oxygen, and physical impacts by coating plants and animals.	Stored in 1,350 litre bunded dedicated tank inside engine container.
Fuels and Oils – Gear Oil	500 litres	Across site.	As above.	Stored in 200L drums on plastic bunds within AD site.
Fuels and Oils – Hydraulic Oil	1,000 litres	Machinery.	As above.	Stored in 200L drums on plastic bunds within AD site.

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
Diesel	60,000 litres	Operation of vehicles on site.	As above.	Stored in bunded 950 litre towable diesel bowser. Bunded Merridale 18,000 litre fuel management system within Somerset Farm.
Ecos (Enzyme)	5 tonne	Addition to digesters to assist in the breakdown of feedstocks for improved output.	Carcinogenic – H334 may cause breathing difficulties if inhaled.	Wrapped in plastic and stored on pallets within bunded area.
Iron Hydroxide & Iron Oxide	30tonnes	Addition to digesters to manage hydrogen sulphide.	Low solubility powder/dust with no known toxic or corrosive properties.	Wrapped in plastic and stored on pallets within bunded area.
Vegetable Oil For The Purposes Of De Foaming	Approx.80 litres	Dosed into the digesters to prevent or inhibit foaming of substrate.	Oil based materials may have impacts on the environment if lost to ground/water.	In 20L container stored within a plastic bund.
Grease	200 x 400 grams	Maintenance of site machinery.	Can cause blockages to infrastructure leading to uncontrolled releases of substances to the environment.	Stored in small plastic cartridges in indoor store.
Water for fire precaution	121,500 litres	In the event of a fire.	Possible short-term impact of light contamination should water need to be utilised.	Stored in 27/3 8.3m x 2.28m EPDM lined water tank within concreted bund.

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
Water for process	2,500 litres dependant on feedstock and other liquids available for use in the process	Addition to process material to optimise digestion process and usage in odour abatement system.	No identified impact. Component of final digestate spread to land.	Stored in water buffer tanks located inside main AD bund.
Calibration Gas Mixture	2 x 10 litre cylinder	For use in gas analysis equipment. To ensure appropriate biomethane quality.	Extremely flammable gas. May explode is heated. Asphyxiant in high concentrations. Avoid potential release.	Stored in cylinders inside grid entry container. Cylinders chained and kept segregated from other materials.
Helium	2 x 50 litre cylinder	For use in grid entry unit. To ensure appropriate biomethane quality.	Non-toxic and non-flammable but can cause suffocation at high levels. Avoid potential release.	Stored in cylinders inside grid entry container. Cylinders chained and kept segregated from other materials.
Sample Gas Mixture	2 x 50 litre cylinder	For use in grid entry unit. To ensure appropriate biomethane quality.	Irritant to humans if inhaled/on skin contact. Avoid potential release.	Stored in cylinders inside grid entry container. Cylinders chained and kept segregated from other materials.
Nitrogen	8 x 30 litre cylinder	Required in the biogas upgrading process.	Asphyxiant in high concentrations. Avoid potential release.	Stored in cylinders and cylinder banks. Cylinders kept securely upright and segregated away from other materials.

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
Oxygen	60 x bank of 16 oxygen cylinders (50 litres).	Injection into head of digesters for management of hydrogen sulphide.	Purchased in small volumes on an as and when needed basis. Exchange organised weekly.	Cylinders of oxygens banks utilised. Stored within a segregated area of site, away from other materials.
Activated carbon	40m3 a year.	Maintenance of Carbon filters in upgrading unit.	Replaced/removed by outside contractor responsible for maintaining equipment.	Material contained inside operating equipment. Replacement media brought to site on an as needed basis – no storage of raw material intended at the site.
Glycol	200 litres.	Use for weather protection in pressure relief valves and engines.	High BOD liquid – will have impact on water quality if released to ground water or surface water.	Stored on concrete surfaces on plastic bund within AD bund.
Biocides – Disinfectant	1,000 litres of disinfectant a year on 1 x wheel washes, 1 x foot mats.	Use in foot dips, and to sterilise equipment when required.	Irritant to staff if inhaled/on skin. Accidental release to sewer may have an impact on aquatic environment or operation of sewage treatment plant.	Stored in approx. 25l plastic tubs in indoor store.
Pesticides - Rodenticide -	Small amounts in bait stations laid by contractor.	Use in designated bait stations for management of pests on site.	Anticoagulant may impact on other wildlife if not controlled in suitable bait stations.	Stored off site and provided by pest control contractor as needed.

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
De Greaser	100 litres.	Maintenance of site machinery.	Potential short-term impact of uncontrolled releases of synthetic chemicals to the receiving environment. Will vary depending on the product type and use.	Stored in indoor store.
Cleaning Products	40 litres of floor and wall/surface cleaner a year of varied strengths and applications.	Cleaning of domestic facilities.	Potential short-term impact of uncontrolled releases of synthetic chemicals to the receiving environment. Will vary depending on the product type and use.	Small containers stored in the lab and staff welfare areas.
Lab Chemicals	Deionised Water – 65 litres Sulfuric Acid – 7 litres Buffer pH Solution 4.01 – 2.5 litres Buffer Solution pH 7 – 2.5 litres	Analysis of waste, digestate, and environmental impacts for ongoing monitoring activities and waste acceptance procedures. Spent chemicals collected by supplier for disposal.	Will vary depending on chemicals. Accidental release to sewer may impact on aquatic environment or operation of sewage treatment plant.	Small volumes stored in packaging provided by lab supply provider in trays inside the lab container.



Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
	Buffer Solution pH10.01 – 2.5 litres  Spectrophotometer cuvette reagents – 3 litres			
AD Blue	1,000 litres	Machinery.	Toxic to animals and humans. Can have long term, persistent impacts if areas of land or water become contaminated following uncontrolled release. Also, direct physical impact on aquatic environment if lost to sewer, via exclusion of oxygen, and physical impacts by coating plants and animals.	Stored in bunded 280 litre mobile transfer tank within the main AD bund.
Liquid Natural Gas	630 tonnes	CHP engines.	Risk of fire and explosion. Is a cryogenic substance and can cause freeze burns on direct contact.	Stored in a Flogas installed purpose made compound with gated access. Stored on site is a maximum of 14.9 tonnes. Delivery is arranged via a telemetry system on an as required basis.
CO <sub>2</sub> Fire Extinguisher	4 x 2kg extinguishers & 4 x 5kg extinguishers	Across site.	Discharge to atmosphere in large quantities should be avoided. Prevent from entering sewers, basements	Across site in appropriate places as per the fire risk assessment. Usually located on stands in close proximity to entrance/exit.

Product	Maximum Quantities Used Per Year	Fate of Raw Materials in the Facility (where will it be used)	Potential Environmental Impact	Storage Arrangements and max amounts stored
			and workpits, or any place where its accumulation can be dangerous.	
Powder Fire Extinguisher	2 x 6kg extinguishers & 1 9kg extinguishers	Across site.	Accidental release to sewer may have an impact on aquatic environment or operation of sewage treatment plant.	Across site in appropriate places as per the fire risk assessment. Usually located on stands in close proximity to entrance/exit.
Foam Fire Extinguisher	1 x 9 litre extinguisher	Across site.	Irritant to staff if ingested/eye contact. Accidental release to sewer may have an impact on aquatic environment or operation of sewage treatment plant.	Across site in appropriate places as per the fire risk assessment. Usually located on stands in close proximity to entrance/exit.
Welding Gas	1 x 10L	To be utilised as required for welding activities.	Welding fumes can cause serious health problems to humans. Prolonged exposure may cause lung damage and various forms of cancer. Potential danger to the environment from repeated use.	Stored in cylinder chained up within workshop area. Kept segregated from other materials.

