



Business Management System

# Annual permit report

|                  |                |
|------------------|----------------|
| Installation     | Lamby Way      |
| Permit reference | FP3238SL       |
| Reporting period | Jan - Dec 2023 |
| Permit Operator  | Novera Energy  |

Author:



Date: 18-Jan-24

Authorised to sign as representative of the Operator

# Annual permit report

|   |   |                          |                       |
|---|---|--------------------------|-----------------------|
| <b>Fugitive Emissions Review (4.1.4)</b>        |   | <b>Reporting period:</b> | <b>Jan - Dec 2023</b> |
| <b>Installation Name:</b>                       |   | <b>Permit reference</b>  | <b>FP3238SL</b>       |
| <b>Lamby Way Landfill gas utilisation plant</b> |   |                          |                       |
| <b>Substances Released/Potentially</b>          | <b>Description of event and any contamination/decontamination of the site which has occurred</b>          |                          |                       |
| Landfill gas                                    | Details of any notifiable events have been submitted to NRW in accordance with our notification procedure |                          |                       |
| Spillages                                       | No significant spillages, contamination or decontamination to report for this installation                |                          |                       |

## Annual permit report

| Raw Materials (& Water) Assessment Table (S4.2 / 2.4) |   |   |  |   |  |  |   |
|---|---|---|--|---|--|--|---|
| Site: Lamby Way                                       |   | Reporting period: Jan - Dec 2023  |  |   | Permit Reference: FP3238SL   |  |   |
| Raw Materials   | Application   | Current Measures to Ensure Efficiency and Waste Minimisation  | Annual Quantity Used   | Fate of Material                                | Environmental Impact Potential   | Reason Alternatives are Not Practicable  | Details of Process Modifications which Could Result in Savings  |
| Landfill gas  | Fuel for engines to produce electricity   | Kilowatt generation from volumes processed is maximised through effective operation, maintenance and servicing of plant | Variable depending on site conditions  | Combustion                                      | Potentially flammable, explosive, toxic, asphyxiant, ecotoxic, corrosive and odorous, greenhouse gas | N/A - Combustion of landfill gas essential for environmental control                         | N/A - environmental benefits to be gained from conversion of methane to CO2   |
| Lubricating oils                                      | To ensure efficiency of utilisation plant is maintained in accordance with manufacturer's instructions                              | Efficient use of lubricating oil is maximised through oil analysis to identify requirement for oil changes              | Oil use is reviewed as part of the budgetting process  | Reprocessing                                    | Ecotoxic and odorous   | Specification determined by engine manufacturer to ensure maximum performance and efficiency | Oil used is specialised for landfill gas fuel as recommended by the OEM. Oil change intervals are based on oil analysis therefore maximising efficiency and minimising use              |
| Water   | Coolant for engine block and domestic water supply  | Cooling water is recirculated around the engines to maximise efficiency and minimise consumption                        | Minimal amounts of water used for cleaning and hygiene purposes  | Treatment                                       | Inert  | N/A - Inert therefore best practicable environmental option                                  | Re-use of water for coolant purposes ensures volumes used are as low as reasonably practicable. Cleaning practices assessed and minimal volumes used, cleaning practices are infrequent |
|   | Hygiene purposes  | handwashing and toilet facilities   |  | Sewerage waste is removed from site and treated | Inert  | n/a  | n/a   |
| Glycol  | Antifreeze for use in coolant water   | Glycol is recirculated around the engines to maximise efficiency and minimise consumption                               | Glycol contained within enclosed-loop system is drained into a container for re-use. OEM* recommends change of glycol every 20,000 hours. Infnis policy is to change following natural depletion or contamination. | Reprocessing                                    | Toxic, ecotoxic  | Specification determined by engine manufacturer to ensure maximum performance and efficiency | Antifreeze mix is specific to engine type and pre-determined by the OEM*. Levels are topped-up following natural depletion or contamination   |
| Battery Acid  | In batteries used for engine start-up and to provide back-up power to ensure rapid restart following any loss of mains power supply | Battery use is essential minimised to the applications listed (see left)  | Typically <10 batteries removed from each site per year  | Recycled  | Corrosive  | Portable electrical supply required for start-up   | Minimal use of battery during start-up only therefore opportunity for savings is insignificant  |

\*OEM: Original Engine Manufacturer

## Waste Minimisation, Recovery and Disposal Assessment (2.6.2)

|   |                                   |   |
|---|-----------------------------------|---|
| <b>Installation Name:</b> Lamby Way Gas Utilisation Plant | <b>Permit Reference:</b> FP3238SL | <b>Reporting period:</b> Jan - Dec 2023 |
|---|-----------------------------------|---|

| Waste Stream                                     | Application/Source                  | Current Measures to Ensure Efficiency and Waste Minimisation  | Fate of Material               | Reason Alternatives are Not Practicable  | Details of Process Modifications which Could Result in Savings   |
|--|-------------------------------------|---|--------------------------------|--|--|
| Oil Filters (205ltr Drum)                        | Engine maintenance                  | Predetermined by manufacturers' recommendations to ensure efficiency  | Reprocessing                   | Oil and filtration devices predetermined by manufacturers to ensure efficiency                             | Not applicable: oil filters changed at pre-determined life based on oil analysis and differential pressure   |
| Oil Contaminated Rags & Absorbents (205ltr Drum) | Engine maintenance and housekeeping | Control measures in place to prevent spillage   | Reprocessing                   | As above   | No further modifications considered possible: Preventative maintenance and procedural practices minimise spillage and the requirement for oil absorbancy products  |
| Waste Engine Oil (Bulk)                          | Engine maintenance                  | Efficient use of lubricating oil is maximised through oil analysis to identify requirement for oil changes              | Reprocessing                   | As above   | No further modifications considered possible: Oil used is specific to the landfill gas fuel in use and as recommended by the OEM*. Oil change intervals are based on oil analysis therefore maximising efficiency and minimising use |
| Batteries  | Engine maintenance                  | Recharged   | Recycled                       | Batteries essential for engine start-up and ensuring rapid restart   | Batteries only replaced when they no longer hold a charge. Maintenance practices are in place to lengthen battery life   |
| Fluorescent Tubes                                | Lighting                            | Replacement when faulty or damaged  | Reprocessing                   | Alternatives not considered practicable due to warm-up time of energy saving bulbs                         | Tubes are only replaced when they have expired   |
| General Waste                                    | Packaging                           | Waste streams which can be reprocessed or recycled are identified and segregation facilities provided where appropriate | Disposal                       | Materials not segregated/ reprocessed are produced in small quantities only making alternatives not viable | Not applicable as a result of small quantities only being produced   |
| Waste water/effluent                             | Welfare facilities                  | Facilities are maintained to ensure minimal water usage   | Road tanker to treatment plant | Connection to mains sewer not practical - quantities produced are small.                                   | Not applicable as a result of small quantities only being produced   |

\*Original Engine Manufacturer

### Annual Reporting of Other Performance Indicators

|   |  |                                       |
|---|--|---------------------------------------|
| <b>Installation:</b>                          | Lamby Way Landfill Gas Utilisation Plant | <b>Permit Reference:</b> FP3238SL     |
| <b>Parameter</b>                              | <b>Jan - Dec 2023</b>                    | <b>Units</b>                          |
| Flare operation hours (total for both flares) | 1,055                                    | hrs                                   |
| Gas engine downtime hours                     | 9,017                                    | hrs                                   |
| Gas engine operation hours                    | 8,503                                    | hrs                                   |
| Volume of landfill gas combusted              | 493,257                                  | m3 (treated by flares)                |
|   | 4,396,089                                | m3 (treated by engines)               |
|   | 4,889,346                                | m3 (total treated by engines & flare) |

#### Operator's Comments:

Only 2 engines now remain on site. Gas treated overall has declined in 2023 as is expected with declining gas with age.

### Reporting of Performance Indicators (Form Ref: PI1)

|                      |  |                                   |
|----------------------|--|-----------------------------------|
| <b>Installation:</b> | Lamby Way Landfill Gas Utilisation Plant | <b>Permit Reference:</b> FP3238SL |
|----------------------|--|-----------------------------------|

#### Annual Production/Treatment (MWh)

|                                   |      |
|-----------------------------------|------|
| <b>Total production of energy</b> | 5881 |
|-----------------------------------|------|

### Environmental Performance Indicators (Schedule 3: Table S3)

| Parameter  | Annual Average Jan - Dec 2023 | Units  | Trends in Environmental Performance |      |
|--|-------------------------------|--------|-------------------------------------|------|
|  |                               |        | 2021                                | 2022 |
| Total oxides of nitrogen (expressed as NO2) emission                 | 1.3                           | Kg/MWh | 2.1                                 | 2.0  |
| Total carbon monoxide emission                                       | 6.4                           | Kg/MWh | 3.8                                 | 6.4  |
| Total engine downtime (downtime hrs/available operation time in hrs) | 51.5                          | %      | 44.8                                | 46.8 |

| Reporting period | Energy Imported (Primary Energy Usage) (MWh) | Parasitics (MWh) | Energy Exported (MWh) | Energy Used on Site (MWh) | Site Efficiency |
|------------------|--|------------------|-----------------------|---------------------------|-----------------|
| Jan - Dec 2023   | 8.6  | 503              | 5,378                 | 512                       | 31.2            |

|                      |  |                          |          |
|----------------------|--|--------------------------|----------|
| <b>Installation:</b> | Lamby Way Landfill Gas Utilisation Plant | <b>Permit Reference:</b> | FP3238SL |
|----------------------|--|--------------------------|----------|

|   |                       |
|---|-----------------------|
| <b>Accident Management Plan Review (Permit condition 2.8.1)</b> | <b>Jan - Dec 2023</b> |
| Reviewed monthly following a review of notifiable events        |                       |

Permit requires that the accident management plan is reviewed at least every 2 years, or as soon as practicable after an accident (whichever is the earlier).

|   |
|---|
| <b>Operator's comments:</b>   |
| No accidents occurred during this period which would require amendment to the Accident Management Plan for this installation. |

|   |                                   |
|---|-----------------------------------|
| <b>Installation:</b> Lamby Way Landfill Gas Utilisation Plant | <b>Permit Reference:</b> FP3238SL |
| <b>Emissions to Air Reporting</b> Jan - Dec 2023              |                                   |
| <b>Date emissions completed (2.2.1)</b>                       | 20/04/23                          |
| <b>Submitted to</b>   | Richard Taylor                    |

Emission reports required by the permit (condition 4.1.2 / 4.1.3) were submitted to the relevant officer in 2023. The results indicated compliance with the levels noted in the permit.