



Business Management System

Annual permit report

Installation	Nantycaws
Permit reference	LP3038SU
Reporting period	2021
Permit Operator	Novera Energy

Author: Kate Phillips

Date: 24-Jan-22

Authorised to sign as representative of the Operator

Fugitive Emissions Review (4.1.4)		Reporting period:	2021
Installation Name:		Nantycaws Landfill gas utilisation plant	Permit reference LP3038SU
Substances Released/Potentially	Description of event and any contamination/decontamination of the site which has occurred		
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		

Raw Materials (& Water) Assessment Table (S4.2 / 2.4)			
Site:	Nantycaws	Reporting period:	2021
		Permit Reference: LP3038SU	

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 used is continually under review as part of the budgeting 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)	<10 batteries per year are typically removed from gas utilisation plants	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)

Installation Name: Nantycaws Gas Utilisation Plant	Permit Reference: LP3038SU	Reporting period: 2021
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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 absorbency 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

Installation:	Nantycaws Landfill Gas Utilisation Plant	Permit Reference: LP3038SU
Parameter	2021	Units
Gas engine downtime hours	225	hrs
Gas engine operation hours	8,566	hrs
Volume of landfill gas treated	2,043,515	m3 (treated by engine)

Operator's Comments:

Engine downtime and operational hours were similar to 2020. The volume of gas utilised decreased slightly as is expected with gas decline with age.

Reporting of Performance Indicators (Form Ref: PI1)

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Annual Production/Treatment (MWh)

Total production of energy	3174
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Environmental Performance Indicators (Schedule 3: Table S3)

Parameter	Annual Average 2021	Units	Trends in Environmental Performance	
			2019	2020
Total oxides of nitrogen (expressed as NO2) emission	1.8	Kg/MWh	1.8	1.9
Total carbon monoxide emission	3.8	Kg/MWh	4.9	3.7
Total engine downtime (downtime hrs/available operation time in hrs)	2.6	%	5.0	2.5

Reporting period	Energy Imported (Primary Energy Usage) (MWh)	Parasitics (MWh)	Energy Exported (MWh)	Energy Used on Site (MWh)	Site efficiency
2021	41.0	220	2954	261.0	15.8

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Accident Management Plan Review	2021
Reviewed monthly following a review of notifiable events	

(Permit condition 2.8.1)

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).

Operator's comments:
No accidents occurred during this period which would require amendment to the Accident Management Plan for this installation.

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Emissions to Air Reporting 2021	
Report Submission Date	15-Apr-21
Submitted to	Karen Dunn

Emission reports required by the permit (condition 4.1.2 / 4.1.3) were submitted to the relevant officer in 2021. The results indicated compliance with the levels noted in the permit.