

## Attachment A1:

### Non-Technical Summary

A non-technical summary to comply with Article 12(1) (u) of the Waste Management Licensing Regulations S.I. 395 of 2004 is provided in this attachment.

- (a) Monopower Ltd, Killycarran, Emyvale, Co. Monaghan, Tel: 047 86726, Fax: 047 86724 is applying to the Environmental Protection Agency (EPA) for a Waste Licence to operate at the above address.
- (b) The site is located in the functional area of Monaghan County Council.
- (c) The site is located in a rural area, so no public sewerage facilities are provided to the site, therefore this site is not under the functional area of any sanitary authority.
- (d) The site will operate at Killycarran, Emyvale, Co. Monaghan; National Grid Reference E263859, N343991
- (e) The site will be a Biomass Combined Heat and Power (CHP) plant, designed for the recovery of biomass waste by converting it into electricity. Biomass materials to be utilised include Spent Mushroom Compost (SMC), Poultry Litter (PL) and Wood Chips (WC). The site will have a capacity to utilise 353,000 tonnes of biomass waste, to generate 22.5MW of electricity per annum. Initially this will be broken down into usage of 198,000 tonnes of spent mushroom compost and 155,000 tonnes of poultry litter per annum. Wood chips will be utilised where available, but the total capacity of biomass waste will be 353,000 tonnes per annum. The site will operate 24 hours per day, 8,200 hours per year and is expected to have an on-line availability of 92%. The plant is to be staffed and operated by 20-25 personnel. This will consist of both technical and administrative staff. The plant will operate continuously on a 3-shift system. Each shift will be covered by a minimum of 2 persons. The proposed hours of fuel (waste) acceptance/handling are 8.00am – 6.00pm, Monday to Saturday. Lorries will carry an average of 20 tonnes each, resulting in approximately 5-6 lorries per hour.
- (f) The activity falls under Class 9 of the Fourth Schedule of the Waste Management acts 1996 to 2003 “use of any waste principally as a fuel or other means to generate energy”.
- (g) The wastes to be treated at the site include

Material	European Waste Catalogue Code (EWC)	Quantity
Spent Mushroom Compost (SMC)	02 01 99	198,000
Poultry Litter (PL)	02 01 06	155,000
Wood Chips (WC)	20 01 38	To be determined

If supplies of one of the above fuels decrease over time, due to changes in the market, there may be a corresponding increase in the other. If wood chips are available to the site, they will also be used, which will reduce the above figures for SMC and PL. However, the overall biomass capacity of the site (353,000 tonnes per annum) will remain constant for each year of the site operation, as this is the capacity the site will be designed for.

(h) The raw and ancillary materials, substances, preparations, fuels and energy which will be utilised in or produced by the activity includes;

Material/ Substance	Nature of Use	Annual Usage
Spent Mushroom Compost	Raw material for biomass CHP plant	198,000 tonnes
Poultry Litter	Raw material for biomass CHP plant	155,000 tonnes
Wood Chips	Raw material for biomass CHP plant (when available)	To be determined
Light Fuel Oil	Raw material / fuel for process	300m <sup>3</sup>
Lime	For flue gas cleaning process	8,000 tonnes
Fly Ash/Bottom Ash	By-product of combustion and from flue gas cleaning process	47,500 tonnes
Sodium Chloride	Raw water treatment	To be determined
Citric Acid	Raw water treatment	To be determined
EDTA	Raw water treatment	To be determined
Sodium Hydroxide	Raw water treatment	To be determined
Maintenance Oils	Maintenance	To be determined
Energy (electricity)	TO power plant – produced on site	2.5MW

(i) The biomass plant will contain the following main components

- Fuel Handling area containing the following;
  - o Fuel reception (Administration Building) and weighbridge
  - o Fuel handling (unloading) and fuel screening
  - o Fuel storage systems
  - o Fuel drying equipment
  - o Fuel feeding
- Combustion system / Boiler
- Air cooled condenser (Condensing economiser)
- Steam turbine generator
- Flue gas cleaning system
- Water Treatment Plant
- Ash removal plant

The site operation is summarised as follows;

1. Delivery of raw materials (fuel/biomass) to site via lorries i.e. poultry litter, spent mushroom compost and wood chips.
2. Disposal of raw materials in the unloading building (each raw material kept separate until combustion)
3. Feeding of raw materials via conveyors to a screening area to remove metal, plastic etc.
4. Storage of raw materials in silos; (2 x 1,250m<sup>3</sup> silos for SMC, 1 x 1,250m<sup>3</sup> silo for PL and 1 x 1,250m<sup>3</sup> silo for WC).
5. Drying of SMC from 70% moisture to 15% moisture in 3 steam-heated fuel driers. PL and WC will not require drying.
6. Feeding of raw materials (SMC from the drying plant and PL and WC from the silos) to the combustion plant (boiler). Each raw material will have a separate fuel feeding system. A 4<sup>th</sup> fuel-feeding system will be in place from an oil burner. Oil is required for start-up of the plant.

7. Combustion of the raw materials in the boiler to produce steam/heat. By-products of this process are ash and combustion gases.
8. Steam produced in the boiler is passed to a steam turbine generator, where electricity is produced. This is the final end-product of the production process.
9. A condenser unit is also located on the site to condense steam prior to returning it to the boiler.
10. Process ash generated on combustion of the fuel will be conveyed to and stored in a silo. This by-product will be transported off-site for use either as a fertilizer or in the cement industry.
11. Combustion gases from the boiler will pass through a flue-gas cleaning system, based on lime. Solids from this process will be conveyed to the fly-ash silo and gases will be emitted to atmosphere via a 50m stack.

(j) The site will comply with Section 40(4)[(a) to (i)] of the Waste Management Acts 1996 to 2003;

- All emissions from the site will be within all specified legal limits.
- All activities will be carried out in conformance with licence conditions and will not cause pollution.
- The company will employ Best available techniques (BAT) in the design and operation of the plant.
- The operation of the plant comply with relevant provisions of the Waste Management Plan for the North East Region.
- Monopower Ltd is a fit and proper person to hold a waste licence.
- Monopower can meet the financial provisions required for compliance with the conditions of a waste licence
- Monopower biomass CHP plant will ensure that energy will be used efficiently in the carrying on of the activity concerned.
- Excess environmental noise will not be caused by the operation of the activity
- All measure to prevent accidents will be taken at the site.
- The site will be left in a clean state in the event of cessation of the activity.

The measures required to achieve the items above have been detailed throughout this Waste Licence Application Form and Attachment and are also detailed in the accompanying EIS for this development.

(k) Emissions from the activity will include

- Stack A-1 Emission from Boiler
- Surface Water Emission Point SW-1 from site drainage

**A1-1 Predicted Air Emission Details**

Parameter	Description of Treatment	Avg Emission Rate mg/Nm3	Avg Discharge Rate kg/yr
Particulates	Good combustion controls & Flue gas cleaning system	33.6	50,040
Nitrogen Oxides	Good combustion practice i.e. careful maintenance of temperature and oxygen in furnace	672	1,000,800
Carbon Monoxide	Good combustion controls and adequate mixing and residence time of the fuel in the furnace	336	500,400
Volatile Organic Carbon	Fuels are not major sources of VOC's	50.4	75,055
Acid Gases – SO <sub>2</sub>	Lime addition	504	750,557
Hydrogen Chloride – HCL	Lime addition	58.8	87,565
Dioxins	Combustion above 850 <sup>0</sup> C.	0.168 ng/m3	2.5 x 10 <sup>-10</sup>
Heavy Metals	Fuels are not major sources of heavy metals	<0.84	1,251

**SW-1 Predicted Surface Water Emission Details**

Parameter	Max. Hourly Average mg/l	Predicted Discharge Rate kg/yr
pH (pH units)	6-8	Surface water flow will be rainfall dependant
BOD	<15	
Total Suspended Solids	<15	
Ammonia as NH <sub>3</sub> -N	<5	
Nitrate	20	
Total Coliform elimination	>99.9	
Faecal Coliform elimination	>99.9	

Pathogenic Bacteria	Absent	
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Fugitive Emission will include dust and odours.

A domestic wastewater treatment system will treat sewerage waste from the site and discharge via a percolation area to groundwater.

(l) All potential emission from the site have been analysed and best available techniques have been proposed to eliminate any impacts. Therefore emissions from the site are not expected to have any adverse affect on the environment.

(m) Proposed monitoring and sampling points include

Ref. No	Details	Monitoring Arrangement
A1-1	Air emission from stack	Continuously/ Quarterly all air emission parameters
SW-1	Surface water discharge from site	Continuously/Weekly/Quarterly, as deemed necessary by licence
GW1 & GW2	Groundwater wells on site	Bi-annually
NSL1 – NSL6	6 Noise Sensitive Locations	Annually
Meteorological	To be determined	Daily/Continuously as deemed necessary by licence

(n) The site is designed to recover waste and the methods of doing so are detailed in section (i) of this non-technical summary

(o) Wastes generated on site will be disposed as follows

Waste Material	Source	Off-site recovery, reuse or recycling or disposal
Fly ash	Flue gas cleaning process	Use in cement industry or as a fertiliser
Bottom ash	Boiler Combustion	Use in cement industry or as a fertiliser
Plastic	Screening of fuel/ packaging waste	Recycled at suitable facility
Metal	Screening of fuel/ packaging waste	Recycled at suitable facility
Paper/Cardboard	Office waste/ Packaging waste	Recycled at suitable facility
General Mixed waste	Office/canteen/ general site waste	Landfill

(p) A fire water retention pond will be provided at the site. Procedures will be put in place to cover all emergency events that have the potential to arise at the site, once constructed.

(q) A residuals management plan will be devised for the site, once constructed.

- (s) Monopower biomass CHP plant does not fall under the SEVESO II Directive.  
(t) Monopower biomass CHP plant will not give rise to any harmful emissions to aquifer.

The following maps are provided in this Waste Licence Application Form, in the relevant attachment detailed. Maps can be examined in conjunction with this non-technical summary to assist in the identification and description of the Monopower Biomass CHP plant.

Attachment	Map No	Title
B.1	Map B.1	Ownership Plan
B.2	Map B2(a)	Site Plan
B.2	Map B2(b)	Site Location Plan
B.6	Map B.6	Location of Site Notice
D.1	Map D.1(a)	Site Layout Plan
D.1	Map D.1(b)	Administration Building
D.1	Map D.1(c)	Fuel unloading building & shredding & screening building
D.1	Map D.1(d)	Fuel unloading building & shredding & screening building
D.1	Map D.1(e)	Boiler, Turbine & Services Building
D.1	Map D.1(f)	Boiler, Turbine & Services Building, Ground Floor
D.1	Map D.1(g)	Boiler, Turbine & Services Building, Second Floor
D.1	Map D.1(h)	Boiler, Turbine & Services Building, Top Floor
D.1	Map D.1(i)	Proposed Drainage Routes from New Site
E.1	Map E.1	Main Emission Point to Atmosphere; A1-1
E.2	Map E.2	Proposed Drainage Routes from Site, with Surface Water Emission Point SW-1
F.5	Map F.5	Location of Groundwater Wells on Site
F.6	Map F.6	Location of Nearest Noise Sensitive Locations to site
I.6	Map I.6	Location of Ambient Noise Monitoring Locations