

EM2 Environmental Aspects – Risk Assessment

EM2 Environmental Aspects

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1.0 Scope

To list the environmental aspects relating to the operation of an animal by-product processing plant and associated electricity generation at Edge Close Green Energy Ltd's site at Main Road, Flagg near Buxton.

To select a list of environmental aspects having potential significant impact on the local or global environment, and over which the Company has a measure of control and prepare a Risk Assessment.

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2.0 Definitions

Environment	Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation.
Environmental aspect	Element of an organisation’s activities, products or services that can interact with the environment
Significant environmental aspect	An environmental aspect that has or could have significant environmental impact.
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s activities, products or services.
Company	Edge Close Green Energy Limited

2.1 Abbreviations

BAT	Best Available Technology
IPPC	Integrated Pollution Prevention and Control
SSSI	Site of Special Scientific Interest
EMR	Environmental Management Representative
EMS	Environmental Management System
EA	Environment Agency
EG	Environmental Review Meetings Group

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3.0 Responsibilities

3.1 Managing Director

- Endorsement of list of Environmental Aspects

3.2 Environmental Manager

- Regularly review the environmental aspects register in liaison with the Environmental Review meeting group
- Convene and co-ordinate the environmental review meetings in liaison with the Managing Director.

3.3 Environmental Review Meetings Group (see AR2 for Members)

- Review organisational and process changes and their environmental effects.
- Update list of environmental aspects following each review.

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4.0 Procedure

4.1 Environmental review

All known environmental aspects were considered as part of an initial environmental review. Aspects were listed under the following headings, under normal, abnormal and emergency operating conditions.

- Controlled / uncontrolled emissions to atmosphere
- Controlled / uncontrolled emissions to water
- Controlled / uncontrolled emissions to land
- Raw materials and natural resources
- Waste management
- Other environmental and community issues

4.1.1 Preliminary list of Environmental Aspects

- Raw material receipt – containment, spillage
- Waste water stream – containment, storage and off-site authorised disposal
- Emissions from generating electricity
- Odour
- Noise

4.2 Environmental Risk Profile Model

The EC used (and will continue to use in future reviews) an “Environmental Risk Profile” model developed by Graham Bolton Planning Partnership to assess environmental aspects. The EC generated a ranked list of significant environmental aspects after applying the following environmental risk profile model.

4.2.1 Risk profile model

The “Environmental Risk Profile” model considers three main elements

- Description of environmental fields
- Assignment of a score for legal and environmental impact potential
- Assignment of a score for compliance and implementation

4.2.1.1 The Environmental Field

These describe all elements of the business operations that are likely to have an impact on the environment from input resources and energy, through the operations to emissions of waste and products.

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An example of an environmental field would be emissions to atmosphere. Refer to Appendix 3

4.2.1.2 Legal and environmental impact potential score

This is a score on a scale of 1-5 that is assigned by the EC. In general terms, the lower the score, the lower the potential environmental impact, and the higher the score, the greater the potential environmental impact.

When considering the impact potential of each environmental field the EC considers:

- Appropriate legislation and how substantial it is
- What environmental effects are likely to arise under normal, abnormal and emergency conditions

The legal and environmental impact potential score is ‘1’ if there is no legislation and no appreciable environmental effect, and the score is ‘5’ if there is either substantial legislation and/or a substantial potential effect. Unless a lower score can be justified, impact potentials are given a score of ‘5’ in recognition of the fact that ignorance of the law ‘in itself’ constitutes a risk.

4.2.1.3 Compliance and implementation score

This is a score assigned by the EC, again on a scale of 1-5. For each environmental field the EC needs to consider how adequate the current response of the business would be to the risk.

In assessing compliance, the EC considered best available technology (BAT) to prevent, minimise and control harm to the environment. This analysis involved an assessment of both “hardware” and “software” controls currently in place and considered the existence or otherwise of:

Hardware / Physical Controls

- Building/Process design layout
- Process monitoring and controls
- Pollution abatement equipment and technology
- Emergency controls

Software/Management Controls

- Management control
- Number , training and supervision of personnel
- Housekeeping and maintenance
- Written systems and procedures

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- Records and documentation

Compliance was checked for the existence of audit/review procedures for all aspects of the Company’s operations

In general, a score of ‘3’ indicates minimal compliance with any legislation; ‘1’ implies doing more than is required by the law and ‘5’ represents doing little or nothing despite there being a legislative requirement.

4.3 Making the Risk Assessment

There are two scores arising from applying the scoring model to each environmental field which are then entered into the environmental risk profile sheet (Appendix 4). The Legal / Environmental score is multiplied by the compliance / implementation score to arrive at the combined risk profile score for each particular environmental field. The following table gives a basis for interpreting the combined risk profile scores:

Score	Risk Assessment
1-3	Low risk – Well managed but ongoing reviews still recommended
4-6	Low/Medium risk – improvements recommended or close operational monitoring
7-11	Medium risk (more extensive) - improvements recommended or close operational monitoring
12-19	Medium/High risk – significant progress strongly recommended
20-25	High risk – urgent action essential to control/reduce risk

4.4 Management endorsement

The list of significant environmental aspects (Appendix 1) was passed to the senior management for endorsement or amendment to arrive at the management-approved list of significant environmental aspects.

4.5 Aspects review

The list of environmental aspects shall be reviewed at the Environmental review meeting, taking into account operational and legal changes occurring since the last review. The EMR shall apply the scoring model to assess the risk profile of new aspects arising. Amended lists will be passed to senior management for endorsement of changes.

4.6 Risk Assessment

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The risk assessment is attached at Appendix 3 (also referred to as FR3).

5.0 Records

The score sheets for the environmental risk profile demonstrate how the group arrived at its ranking of significant environment aspects. The EMR shall retain these records in hard copy appended to this document

The EMR shall retain hard copies of minutes of all environmental management review meeting and endorsed significant aspect lists

6.0 References

- EM1 Manual section 4.3.1 environmental aspects
- EM1 Manual section 4.6 Management review
- MM7A – Non-conformance – Corrective actions
- AR2A -Management Review
- Environmental Risk Profile Model

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Appendix 1 – List of Significant Environmental Aspects

Rank	Environmental Field	Impact Potential	Compliance / Implementation	Risk Score
	Raw material - spillage			
	Liquid effluent – waste stream			
	Liquid effluent – wash down			
	MBM - spillage			
	Site management – Emergencies			
	Site management – Security			
	Waste – Controlled			
	Site management –Contamination			
	Noise and Vibration			
	Atmosphere – Odour			

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Appendix 2 – Management Endorsed List of Significant Environmental Aspects

Significant aspects as listed by the management in order of priority:

1. Containment of raw material – self-contained (carcasses) or contained in dolavs only to be received on site
2. Prevention of spillages/leakages
3. Control of odours
4. Control of noise
5. Control of emissions to air
6. Maintenance of records

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Document Reference: EM2 – Appendix 3

**PROPOSED ANIMAL BY-PRODUCTS PROCESSING PLANT AND
ELECTRICITY GENERATION**

**AT MAIN ROAD, FLAGG, NR BUXTON,
DERBYSHIRE**

RISK ASSESSMENT: FR3

**FOR
EDGE CLOSE GREEN ENERGY LIMITED**

OUR REF: 15/2949/ippe

Prepared By:		G J Bolton Director
Checked By:		Richard Thornhill Director, Agritec Ltd

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1. The Risk Assessment is bespoke as there is no directly comparable plant within the UK nor any generic Risk Assessment under Environment Agency Standard Rules.
2. As the plant is not yet operational no risk assessment of Site Management is included in the Risk Assessment. It is noted, however, that the Company's management is the same management as that of F Redfern & Sons Ltd, operating the adjacent knackery, Intermediate Plant, carcass and pet incinerator and veterinary waste collection centre. The management of the adjacent facilities are noted as being exemplary, despite being activities which are inherently potentially odorous and required to be carried out at any time of the day, 7 days a week; there is no formal record of complaints or inappropriate management.
3. The operator Company, Edge Close Green Energy Ltd, will only receive raw material from the adjoining knackery as carcasses (self-contained) or animal by-products in containers to be put or tipped directly into the reception hopper, and the hopper lid thereafter closed – there is no storage on site. Consequently, it is assessed that the risks involved to sensitive receptors and the environment from contamination, the release of particulate matter (dust), infectious micro-organisms or odour is low.
4. The processing of animal by-products is potentially odorous. The process involved is innovative and all material is fully contained throughout from input of material to output of tallow, used directly or via a storage tank for electricity generation on site, and meat and bone meal which is loaded into a trailer within a building for off-site use. All potential area and point sources have been identified; air from point sources will be used as combustion air in the electricity generation set and odours oxidised. Odours are already present at this location due to the adjacent facilities and the Installation process will result in the removal of certain sources of odour. Consequently, it is assessed that the

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probability of exposure to odour will be low-medium and the magnitude of risk medium. An odour management plan will be maintained by the applicant.

5. There is the potential for noise to cause annoyance to local receptors. Noise attenuation has been built into the building housing the plant, in accordance with the planning permission, procurement of plant will include high consideration of noise emission, and the noisiest item of plant, the generating set, will have its own attenuation housing. The noise survey and report produced for the planning application and Environmental Permit application indicates that noise from the new plant will be considerably less than measured ambient noise levels.
6. In respect of emissions to surface or ground waters, all wastes will be contained at all times and during storage there are two layers of immediate containment and in some instances three – for example, raw material is contained within the reception hopper or process pipework, there is an impermeable hard standing below, and a contained drainage system from the hard standing. Consequently, the assessed risk to surface water, ground water and abstraction from water courses is considered to be very low in all cases and similarly the magnitude of the risk.
7. Releases to atmosphere will be limited. The fuel used will be tallow, a biomass fuel produced on site, and the hot exhaust gases used in heating water for the process; it is thus a Combined Heat and Power operation and the most efficient means of using energy. Consequently, it is considered that the risk to the environment is low and within national and European standards.
8. Waste is limited to waste water and wash down waters, and some recovered metal from carcasses and used charcoal (from odour abatement filters); the latter represents no risk to the environment as the material is recycled in full. Waste water is contained at all times. Though it is of a quality that is permissible to be

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spread to land, the waste water streams will be collected and taken off-site for authorised disposal.

9. The handling of MBM can produce dust and is a potential flammable risk. Measures are in place to contain the dust, to recover spillages, and control fire risk.

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Appendix 4**Environmental Risk Profile Score Sheet**

Environmental Field	Legal and Environmental Impact Potential					Compliance and Implementation Score					Individual Risk Score
	1	2	3	4	5	1	2	3	4	5	
INPUTS											
RAW MATERIALS											
◆ Animal by-products					x		x				10
◆ Energy		x					x				2
◆ Water		x					x				4
OPERATIONAL											
SITE MANAGEMENT											
◆ Contamination											
◆ Emergencies											
◆ Storage - water & products											
OUTPUTS											
ATMOSPHERE											
◆ Prescribed		x					x				2
◆ Odour				x				x			8
NOISE											
◆ Noise and vibration			x				x				3
WASTE											
◆ Site Waste		x						x			4
FINISHED PRODUCTS											
◆ Handling		x						x			4

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Environmental Risk Profile Score Justification Sheet

Environmental Field	Legal / Environmental Impact Potential	Score	Compliance / Implementation	Score	Risk Score
RAW MATERIALS					
Animal By Products	Material used is Category 1 by products	5	Containment in place with regard to input and handling	2	10
Energy Use	Atmospheric pollution – but biomass fuel	2	Management control, CHP in operation	1	2
Water Use	Aqueous contamination, but lawfully usable on land	2	Little outside input, reuse of some, authorised off-site disposal	2	4
SITE MANAGEMENT					
Contamination					
Emergencies					
Storage					
ATMOSPHERE					
Prescribed release	Atmospheric pollutants	2	Low sulphur fuel used, regular maintenance / testing of emission points	1	2
Odour	Release of offensive odour	4	Enclosure, no on-site storage, immediate processing, use as combustion air, comply with current BAT recommendations	2	8
NOISE					
Noise and vibration	Unsocial noise levels	3	Built-in attenuation Management controls	1	3
WASTE					
Waste water stream and wash down	Potential pollution, short term, use of authorised off-site disposal	2	Little waste produced, secure storage, disposed of according to current legislation	2	4
PRODUCTS					
Handling	Potential pollution	2	Only MBM taken off-site, containment	2	4

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