

Energy Ventures No1 Ltd

# ACCIDENT MANAGEMENT PLAN

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Energy Ventures No1 Ltd

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## 1. INTRODUCTION

This document has been prepared for Energy Ventures No1 Ltd and forms an Accident Management Plan in support of a New Bespoke Installation Permit Application for a proposed energy recovery facility at their site in Sherburn in Elmet, Leeds.

The facility is designed to combust pre-prepared waste feedstocks for produce heat to raise steam in a conventional tube boiler for subsequent utilisation in a steam turbine for the production of renewable electrical with a gross electrical output of 25MWe.

The Installation has been designed to process a maximum of 240,000 tonnes per annum of pre-prepared RDF and mixed municipal waste feedstocks.

This Accident Management Plan has been produced in accordance with EA guidance Document '*How to comply with your Environmental Permit (EPR 1.00)*'.

It is stipulated under this guidance document that the Accident Management Plan fulfils the following four key requirements:

- Identifies events or failures that could damage the environment;
- Assesses how likely they are to happen and the potential environmental consequences;
- Actions to minimise the potential causes and consequences of accidents; and
- The actions that are required to be carried out if an accident happens.

This Accident Management Plan will be implemented and maintained at the site as part of the company's Environmental Management System and will ensure the site and all operatives within are fully prepared for such incidents.

The Accident Management Plan and all associated procedures will be reviewed at least every four years or as soon as practicable after an incident, with changes made accordingly to minimise the risk of occurrence / recurrence.

All of the necessary actions that are required to be taken in the event of an accident will be detailed within the detailed Site Emergency Procedures.

## 2. RISK MAGNITUDE ESTIMATIONS

The Accident Management Plan (Table 2.2 overleaf) has adopted a risk assessment approach to each potential hazard by combining the probability and magnitude of the potential risk to give an estimation of the risk prior to any mitigation measures. The risk management measures, which are designed to reduce the likelihood of occurrence, are then detailed followed by an estimation of the actual risk post-mitigation (Residual Risk Rating).

The DEFRA guide to risk assessment<sup>1</sup> indicates the approach of subjectively classifying the magnitude of potential consequences into four categories depending upon the degree of the impact that the potential risk could have and the context in which the risk is being assessed. The classification is used as a guide in this Risk Assessment.

The four categories are as follows:

- **Severe:** Possible irreparable damage to environmental resources;
- **Moderate:** Possible damage to environmental resources which are limited within a regional context;
- **Mild:** Possible effects might be transient damage to environmental resources which are commonplace on a regional basis and alternative sources are readily available;
- **Negligible:** The effects are negligible or might cause very slight temporary deterioration in the current environmental resource quality.

The matrix shown below considers the probability of the potential risk against the magnitude of the potential impact, thereby giving an estimation of the resulting likelihood of the risk occurring.

**Table 2.1: Risk Estimation Matrix**

Probability of potential Risk	Magnitude of Potential Impact			
	Severe	Moderate	Mild	Negligible
High	High	High	Medium/Low	Near Zero
Medium	High	Medium	Low	Near Zero
Low	Medium	Medium	Low	Near Zero
Negligible	Medium	Medium/Low	Low	Near Zero

The qualitative risk assessment for the Accident Management Plan has been based on the matrix outlined above.

The final stage of the risk assessment is the judgement of the severity of the residual risk following implementation of the mitigation measures.

The entire plant has been subject to HAZOP and has been designed to fail safe.

<sup>1</sup> A Guide to Risk Assessment and the Risk Management for Environmental Protection, 1995.

**Table 2.2: Accident Management Plan**

Accident Scenario	Probability of Accident Occurring	Magnitude of Potential Impact	Risk Rating before mitigation	Risk Management	Residual Risk Rating (following Mitigation)
1 - Spills and Leaks / Loss of Containment / Transfer of Substances / Overfilling of Vessels	Medium	<p><b>Moderate to Severe</b></p> <p>Spillage and leakage could occur during fuel deliveries, vehicle refuelling, vehicle breakdowns/ accidents and or damage to tanks or bunds;</p> <p>Loss of containment could result in potentially polluting liquids (including oils) being discharged in surface water drainage systems and to controlled waters;</p>	Low	<ul style="list-style-type: none"> <li>The site is entirely sealed hardstanding with fully contained and sealed drainage and therefore considered to have a low potential for impacts to ground water.</li> <li>A sealed drainage and containment system for tanks containing potentially polluting liquids has been constructed so that any leaks / spills are contained.</li> <li>In the event of a fire, the drainage system would be isolated to prevent any fire water escaping off site.</li> <li>Electronic monitoring (i.e. level gauges, feedback loops etc) shall be installed on all vessels.</li> <li>All delivery areas are contained within a sealed drainage and containment system that incorporates bund walls, appropriate falls and drains.</li> <li>All storage vessels have been constructed to the appropriate British Standard.</li> <li>Tanks are inspected visually on a daily basis by site staff to ensure continued integrity of tanks, and identify any necessary remedial action.</li> <li>Minor spills to be cleaned up immediately, using sand or proprietary absorbent. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary.</li> <li>Immediate action to be taken in event of major spill which is likely to cause polluting emissions to the environment to prevent liquid from entering surface water drains or any adjacent unsurfaced ground. Spillage to be cleared immediately and placed in containers for offsite disposal. EA to be informed.</li> <li>The plant has been designed in order to include an automated shutdown facility.</li> <li>The company has established accident and emergency procedures.</li> </ul>	LOW

2 - Vandalism	Medium	Moderate  The site could be subject to intentional vandalism and damage by intruders / trespassers who could cause damage or harm to the plant and equipment, spills and leaks to tanks.	Medium	<ul style="list-style-type: none"> <li>On-site security measures.</li> <li>Security lighting 24 hours a day.</li> <li>Security cameras are installed at key areas of the site.</li> <li>Security fencing extends around the site perimeter.</li> <li>Lockable gates are located at the site entrance.</li> <li>Gates will be locked whenever the site is closed.</li> <li>Gates and fencing are inspected daily by operations staff to identify deterioration and damage and the need for repair.</li> <li>Fencing and gates are maintained and repaired to ensure their continued integrity. If damage is sustained, repair will be made within the same working day. If this is not possible, suitable measures will be taken to prevent unauthorised access to the site and permanent repairs will be affected as soon as is practicable.</li> <li>All visitors to the site are required to register in the visitor's book and sign out again on exit, thereby minimising the risk of unauthorised visitors on the site.</li> <li>Operational procedures have been implemented including regular inspections, ensuring continual monitoring of security provision at the site.</li> </ul>	LOW
3 - Flooding	Low: The majority of the site lies within Flood Zone 1 (low risk).	Moderate	Low	<ul style="list-style-type: none"> <li>The site is equipped with sealed drainage and bunding systems which will prevent the inflow of offsite flood water into critical areas (bunds, tanks, storage etc.).</li> <li>The flood risk map indicates that the site lies within Flood Zone 1; an area where there is a low risk of flooding from rivers and the sea. This is land assessed as having a chance of flooding of less than 1 in 1000 (0.1%) each year.</li> <li>Weather forecasts will be monitored and the operations manager will ensure extreme weather forecasts are prepared for in advance.</li> </ul>	LOW
4 - Fire in EfW plant:  Plant malfunction;  Electrical equipment that could provide an ignition source;	Medium	Severe	Medium	<ul style="list-style-type: none"> <li>All plant is subject to a planned preventative maintenance schedule.</li> <li>The plant has significant control and safety systems all of which are interlocked to ensure a very controlled shutdown in the event that the plant undergoes operational difficulties.</li> <li>All plant has been specified to be intrinsically safe and earthed in accordance to best practice.</li> <li>All aspects of the plant and buildings are constructed of non-combustible materials.</li> </ul>	LOW

Waste products / raw materials that may support combustion.				<ul style="list-style-type: none"> <li>Containment system: all tanks and vessels containing flammable and potentially polluting liquids are constructed so that any leaks/spillages are contained and responded to in accordance with established emergency procedures.</li> <li>Fire suppression, detecting and monitoring systems have been installed.</li> <li>Separation of combustible materials from the source prior to processing: <ul style="list-style-type: none"> <li>All waste is stored within the dedicated storage areas.</li> <li>All flammable process consumables shall be stored in bunded tanks.</li> </ul> </li> <li>In the event of a fire, the following actions will be taken: <ul style="list-style-type: none"> <li>The fire brigade will be notified immediately and the EA as soon as practicable; and</li> <li>The site will be immediately evacuated.</li> </ul> </li> <li>Records of fire incidences will be kept on site together with a summary of remedial action taken.</li> <li>The EA will be advised of all incidents of fire as soon as is practicable.</li> <li>Smoking will not be permitted in the operational areas of the site.</li> <li>Automated fire detection and control systems have been installed.</li> </ul>	
<b>5 - Incompatible Feedstock/ Unwanted Reactions:</b>  Some of the raw materials and waste inputs at the site could contain impurities that impede / prevent the combustion process.	Low	Moderate / Severe	Low	The following methods will be implemented to ensure that incompatible feedstocks do not compromise the safe operation of the plant: <ul style="list-style-type: none"> <li>All waste feedstock accepted onto site will be subject to a detailed pre-acceptance procedure;</li> <li>All incoming waste feedstock will be inspected in accordance with an established waste acceptance procedure;</li> <li>Any non-conforming waste feedstock will be removed prior to acceptance in accordance with an established waste rejection procedure.</li> </ul> Records of incidents involving incompatible waste will be kept on site together with a summary of the remedial action taken.	LOW
<b>6 - Failure of Mains Services:</b>  Failure in the mains services, water or electricity.	Medium	Low	Low	In the event that mains services of water and electricity supplied to the site are unavailable, the following actions will occur:	Negligible



				<ul style="list-style-type: none"> <li>• In the event of sudden disconnection of the grid the ID fan will cease to operate, thus no emissions will be released to atmosphere;</li> <li>• All conveyors will cease operating so no further transfer of material can occur;</li> <li>• The software control systems are all backed up with an Unlimited Power Supply system that will ensure that a controlled shutdown takes place; and</li> <li>• The boiler plant shall shutdown, thus rendering the plant inoperable.</li> </ul> <p>On grid failure, an emergency diesel generator will be used to allow the safe shutdown of the plant.</p>	
<p><b>7 - Operator Error / Failure of Equipment:</b></p> <p>The unexpected breakdown of any part of the plant could result in short term build up of waste in the Fuel Reception Hall or the incomplete treatment of waste.</p> <p>The result of operator error could result in the plant not functioning efficiently.</p>	Medium	Low	Low	<ul style="list-style-type: none"> <li>• The site is equipped with spare plant and equipment which can be used in the event of a single plant breakdown. (e.g. loading shovels etc).</li> <li>• The facility has been designed with a number of fail safe and automatic shutdown systems.</li> <li>• Should the facilities storage capacities be exceeded, incoming waste will be diverted.</li> <li>• All equipment is subject to a Planned and Preventative Maintenance Programme (PPM), to minimise unplanned failures.</li> <li>• The plant also has in place a number of Emergency Shutdown Controls to ensure safe shut down in emergency.</li> </ul>	Negligible