Application for a permit to operate Schedule 13A small waste incineration plant

Local Authority – Pollution Prevention and Control
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010 (as amended)

Introduction

When to use this form
Use this form if you are sending an application for a 'Schedule 13A' installation to a Local Authority under the above regulations.

Before you start to fill in this form
Please read the General Guidance Manual for Part A2 and Part B installations. This contains a list of other documents you may need to refer to when you are preparing your application, and explains some of the technical terms used. You are also urged to speak to the officer who will be dealing with the application. You can find out who this is by ringing 01472 313131 and asking for the Environment Team or emailing vicky.wray@nelincs.gov.uk

Which parts of the form to fill in
You should fill in as much of this form as possible. The appropriate fee must be enclosed with the application to enable it to be processed further. When complete return to:

Environment Team
North East Lincolnshire Council
Municipal Offices
Town Hall Square
North East Lincolnshire Council
DN31 1HU

Other documents you made need to submit
There are a number of other documents you will need to send us with your application. Each time a request for a document is made in the application form you will need to record a document reference number for the document or documents that you are submitting in the space provided on the form for this purpose. Please also mark the document(s) clearly with this reference number and the application reference number, if you have been given one. You can request an application reference number from the officer dealing with your application.

Using continuation sheets
In the case of the questions on the application form itself, please use a continuation sheet if you need extra space; but please indicate clearly on the form that you have done so by stating a document reference number for that continuation sheet. Please also mark the continuation sheet itself clearly with the information referred to above.

Copies
Please send the original and a copy of the form and all other supporting material, to assist consultation.

If you need help and advice
We have tried to make the application form as straightforward as possible, but please get in touch with us at the address given above if you need any advice on how to set out the information we need.

LA-IPPC Application Form: to be completed by the operator		
For Local Authority use		
Application Reference: AP/EP2014 00001	Officer Reference: VLW	Date received: 21/07/14

Section 1 Installation basics

1.1 Name of the installation

Energy Pyrolysis Ltd

1.2 Address of the site of the installation

West Factory Bale Store

Great Coates Industrial Estate

Moody Lane

Grimsby

DN31 2TT

Ordnance Survey NGR TA 241 127

1.3 Existing environmental permits

Please give details of any existing environmental permits for the installation, or any waste management permits or water discharge consents, including reference number(s) and type(s):

None

Section 2 The operator

Please provide the information requested below about the "Operator", which means the person who it is proposed will have control over the installation in accordance with the permit (if granted)

2.1 The Operator – Please provide the full name of company or corporate body

Energy Pyrolysis Ltd

Trading/business name n/a

Registered Office address

145 – 157 St. John Street
London
EC1V 4PW

Principal Office address (if different)

Postcode:

Company registration number **08679077**

2.2 Holding Companies

Is the operator a subsidiary of a holding company within the meaning of Section 736 of the Companies Act 1985?

No [X]

Yes [ ] name of ultimate holding company

Registered office address

Postcode:

Principal Office address (if different)

Postcode:

Company registration number:

Section 3 Who can we contact about your application?

It will help us to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator. This could be an agent or consultant rather than the operator.

Graeme Kennett

Environmental Consultant

360 Environmental Ltd

The Oak Business Centre

79 – 93 Ratcliffe Road

Sileby

Leics

LE12 7PU

01509 812052

graeme.kennett@360environmental.co.uk

Section 4 Site plans

4.1 Please provide:-

* A suitable map showing the location of the installation clearly defining extent of the installation in red
[Appendix 1]

* A suitable plan showing the layout of activities on the site, including bulk storage of materials, waste storage areas and any external emission points to atmosphere

[Appendix 1]

* A suitable plan showing the site drainage system and all discharge points to drainage or watercourses.

[Not applicable]

Section 5 Waste types and activities

5.1 Complete Table 1 to provide a complete list of waste types to be incinerated in the plant. Refer to appendix for codes (use a separate sheet if required, Document reference_____)

Table 1: Waste types to be incinerated			
Code	Description	Source	Quantity (tonnes per annum)
16 01 03	Tyres	End of life vehicles	7500

5.2 Delivery and reception of waste Provide a description of the proposed waste reception and handling arrangements, including

* the precautions to be taken against the pollution of land, air and water
* precautions against noise and odour and other potential risks to human health
* how the mass of received waste will be measured

[Appendix 2]

5.3 information about waste arriving at the site Provide details of how information about waste being accepted on site will be collected and checked. You must include
* how you will check the documentation accompanying the waste
* how you will confirm the suitability of the waste for combustion, including physical and (as far as practicable) chemical information
* how you will determine the precautions to be taken in handling the waste
* the sampling of waste to be undertaken to check that the documentation is accurate

[Appendix 2]

Section 6 The small waste incineration plant

6.1 Description of plant Provide in Table 2 a full description of the plant, with additional information referenced. If there is no place in the table for the details please use a separate sheet.

Table 2: Description of plant					
Manufacturer	Young New Energy Environmental Protection Plant Co. Ltd			Proposed stack and discharge conditions	
Model	LJW6628/345R			Stack height (m)	
Year of manufacture		2014		Efflux speed (m/s)	
Serial number (if known)				Efflux temperature (K)	
Thermal input kW	3	Rate of incineration (kg/h)			1500
Secondary combustion chamber/ afterburner				n/a	
Afterburner fitted	n/a	Inlet temp		Additional information	Doc ref
Residence time (s)	n/a	Outlet temp		Technical drawing	Doc ref

6.2 Chimney height calculation and dispersion modelling Provide a chimney height calculation and any available dispersion modelling information for the appliance described in Table 2

[Appendix 4]

6.3 Secondary combustion temperature and residence time Provide a secondary chamber residence time calculation or equivalent information from the manufacturer or supplier.

[n/a]

6.4 Energy recovery Provide a description of the proposed energy recovery from the incineration process, including any proposals for the generation and use of heat, steam or power

[Appendix 5]

6.5 Monitoring Provide details of the proposed emissions monitoring, including continuous monitoring, recording systems and periodic extractive monitoring. If any monitoring has been undertaken please provide the details of emission concentrations and quantify in terms of mass emissions. If no monitoring has been undertaken please state this.

[Appendix 6]

6.6 Prevention of operation in certain circumstances Describe the systems to be employed to prevent the feeding of waste into the plant until the secondary combustion chamber temperature is at least 850oC at startup or if the temperature falls below 850oC in operation or in the event of the failure of waste gas cleaning systems.

[Appendix 7]

6.7 Minimisation of residues Provide a description of the techniques to be used to minimise the amount and harmfulness of any residues from the incineration process, including any proposed recycling

[Appendix 8]

6.8 Accidents and incidents Describe the action you propose to take in the event of accidents or incidents involving the incinerator. You should describe each type of incident and the appropriate response.

[Appendix 9]

6.9 Waste waters Describe the precautions to be taken against the pollution of the soil, surface water or ground water. In particular, describe the containment arrangements for contaminated rainwater run-off from fire-fighting operations.

[Appendix 10]

Section 7 Management and training

7.1 Competent person Describe how the person who will be responsible for the day to day operation of the incineration plant will be selected and trained, and how that person's competence to operate the plant will be checked and reviewed.

[Appendix 11]

7.2 Environmental management system Describe the management systems to be used to ensure that you comply with the conditions of an environmental permit if the application is granted. In particular describe

* the schedule of maintenance covering all plant and equipment at the installation
* record keeping systems covering the acceptance of waste, recording of maintenance, records of emission monitoring, training
* how employees are to be trained in their responsibilities in respect of compliance with the conditions of an environmental permit if it is granted
* notification of relevant bodies in the event of an incident or abnormal emissions

Section 8 Application fee and annual charges

The application cannot be processed unless the correct application fee is enclosed or payment has been made by another means.

8.1 Application fee

Either

I/We enclose a cheque PAYABLE TO North East Lincolnshire Council for the application fee of £_____

Or, if you have made arrangements to pay by another method:

Payment of the fee of £ 3218.00 has been made by [BACS]

Please provide a reference for the payment ___Appendix 13_____

If we grant you a permit, you will be required to pay an annual subsistence charge. Failure to do so will result in revocation of your permit and you will not be able to operate your installation.

8.1 Invoicing

Please provide details of the address you wish invoices to be sent to and details of someone we may contact about fees and charges within your finance section.

West Factory Bale Store

Great Coates Industrial Estate

Moody Lane

Grimsby

DN31 2TT

Section 9 Commercial confidentiality

9.1 Is there any information in the application that you wish to justify being kept from the public register on the grounds of commercial confidentiality?

Yes

Please provide full justification, considering the definition of commercial confidentiality within the PPC regulations.

Doc Reference Appendix 14_____

9.2 Is there any information in the application that you believe should be kept from the public register on the grounds of national security?

No

Do not write anything about this information on the form. Please provide full details on separate sheets. You should also provide a copy of the application form to the Secretary of State for a Direction on the issue of National Security.

Section 10 Data Protection

The information you give will be used by the Local Authority to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

- consult with the public, public bodies and other organisations,
- carry out statistical analysis, research and development on environmental issues,
- provide public register information to enquirers,
- investigate possible breaches of environmental law and take any resulting action,
- prevent breaches of environmental law,
- assess customer service satisfaction and improve our service.

We may pass on the information to agents/representatives who we ask to do any of these things on our behalf.

Section 11: Declarations

11.1 Any previous relevant offences (delete whichever is inapplicable)

I/We certify

No offences have been committed in the previous five years which are relevant to my/our competence to operate this installation in accordance with the EP Regulations.

Signature _____

Name John Saunders

Position Director

Date 17/07/14

11.2 Signature of applicant(s)

I/We certify that the information in this application is correct. I/We apply for a permit in respect of the particulars described in this application (including supporting documentation) I/We supplied.

Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.

For the application from:

Installation name: Energy Pyrolysis Ltd

Signature: JS

Name: John Saunders

Position: Director

Date: 17/07/14

Signature: _____

Name: _____

Position: _____

Date: _____

* Where more than one person is defined as the operator, all should sign. Where a company or other body corporate – an authorised person should sign and provide evidence of authority from the board of the company or body corporate.

Section 12 Offences

It is an offence under Regulation 38 of the EP Regulations, for the purpose of obtaining a permit (for yourself or anyone else) to:

- make a false statement which you know to be false or misleading in a material particular,
- recklessly make a statement which is false or misleading in a material particular.

If you make a false statement

- we may prosecute you, and
- if you are convicted, you are liable to a fine or imprisonment (or both).

ENERGY PYROLYSIS PERMIT APPLICATION CHECKLIST

Section	Question	Reference	Description
4	4.1	Appendix 1	Installation boundary
			Site plan
			Plant schematic layout
5	5.2	Appendix 2	Waste acceptance
	5.3		
6	6.1	Appendix 3	SWIP description (Non-technical summary)
	6.2	Appendix 4	Air Quality and Emissions
	6.4	Appendix 5	Resource efficiency
	6.5	Appendix 6	Emissions Monitoring Plan
	6.6	Appendix 7	Start-up procedures
	6.7	Appendix 8	Waste minimisation techniques
	6.8	Appendix 9	Accident Management Plan
	6.9	Appendix 10	Fire Management Plan
7	7.1	Appendix 11	Training Plan
	7.2	Appendix 12	Environment Management System
8	6.8	Appendix 13	Payment record
9	9.1	Appendix 14	Commercial in confidence

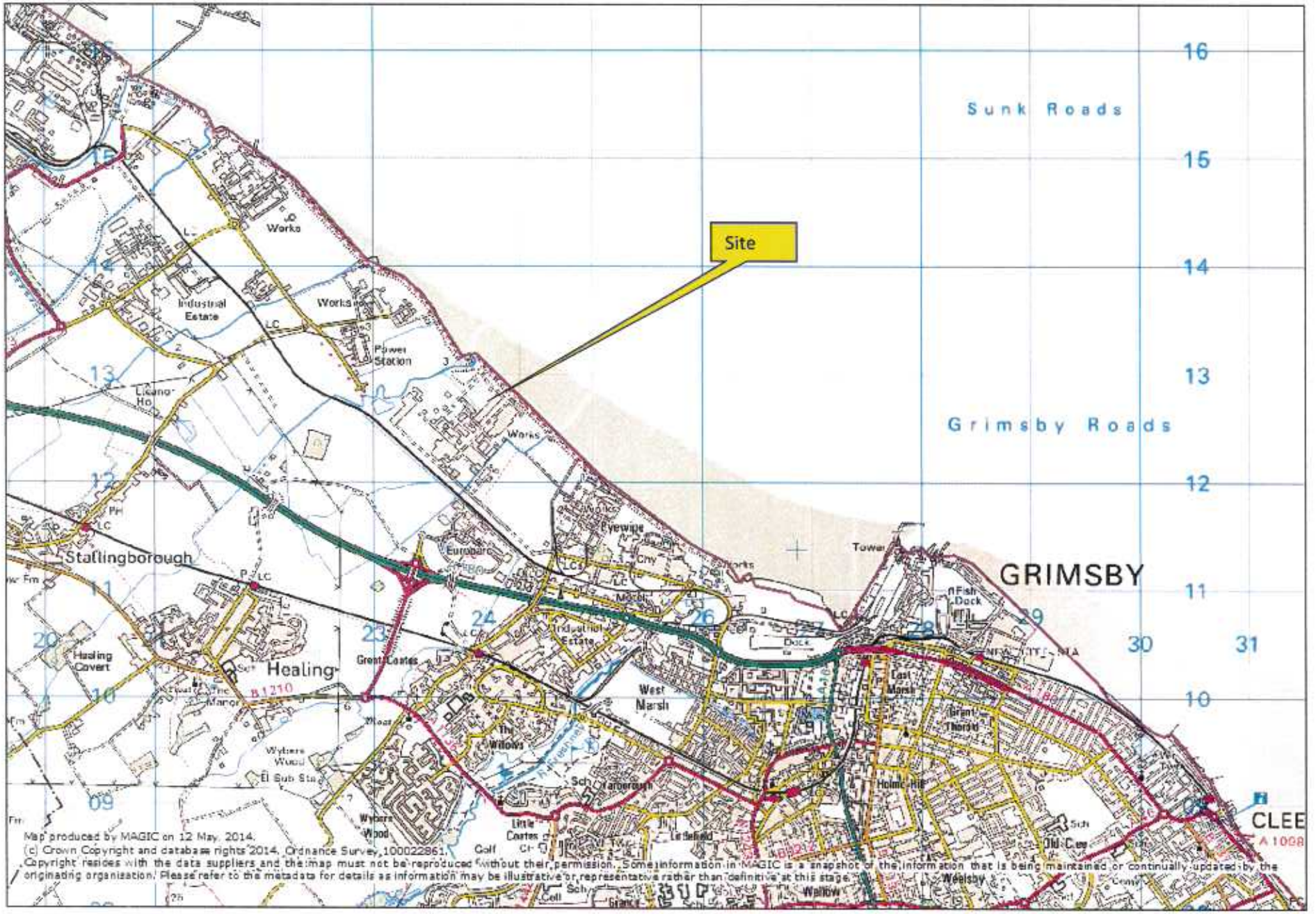
Prepared by: 360 Environmental Ltd
The Oak Business Centre
79 – 93 Ratcliffe Road
Sileby
Leics
LE12 7PU

Appendix 1 – Site plans

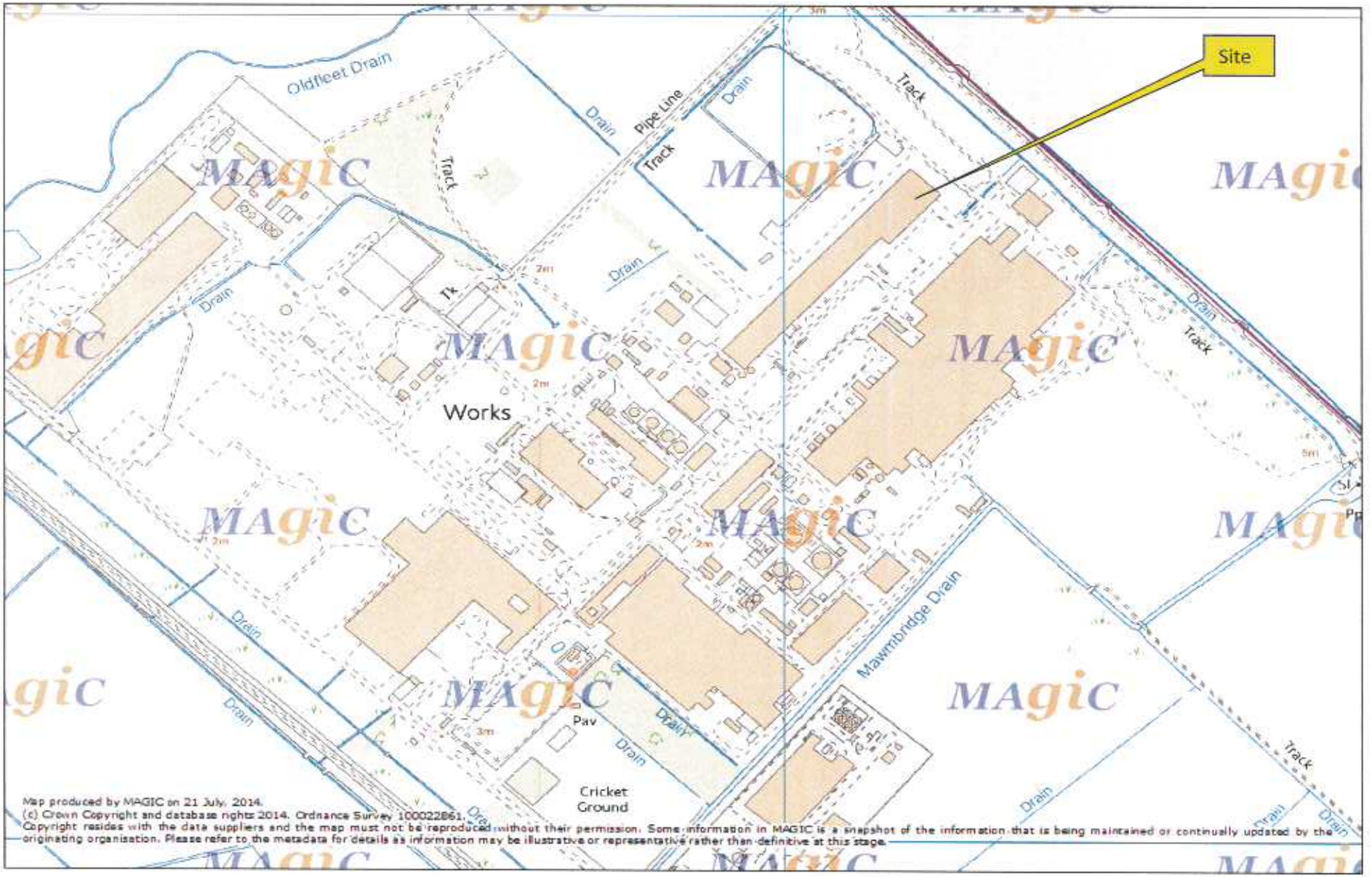
SITE DETAILS	
Operator	**Energy Pyrolysis Ltd**
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

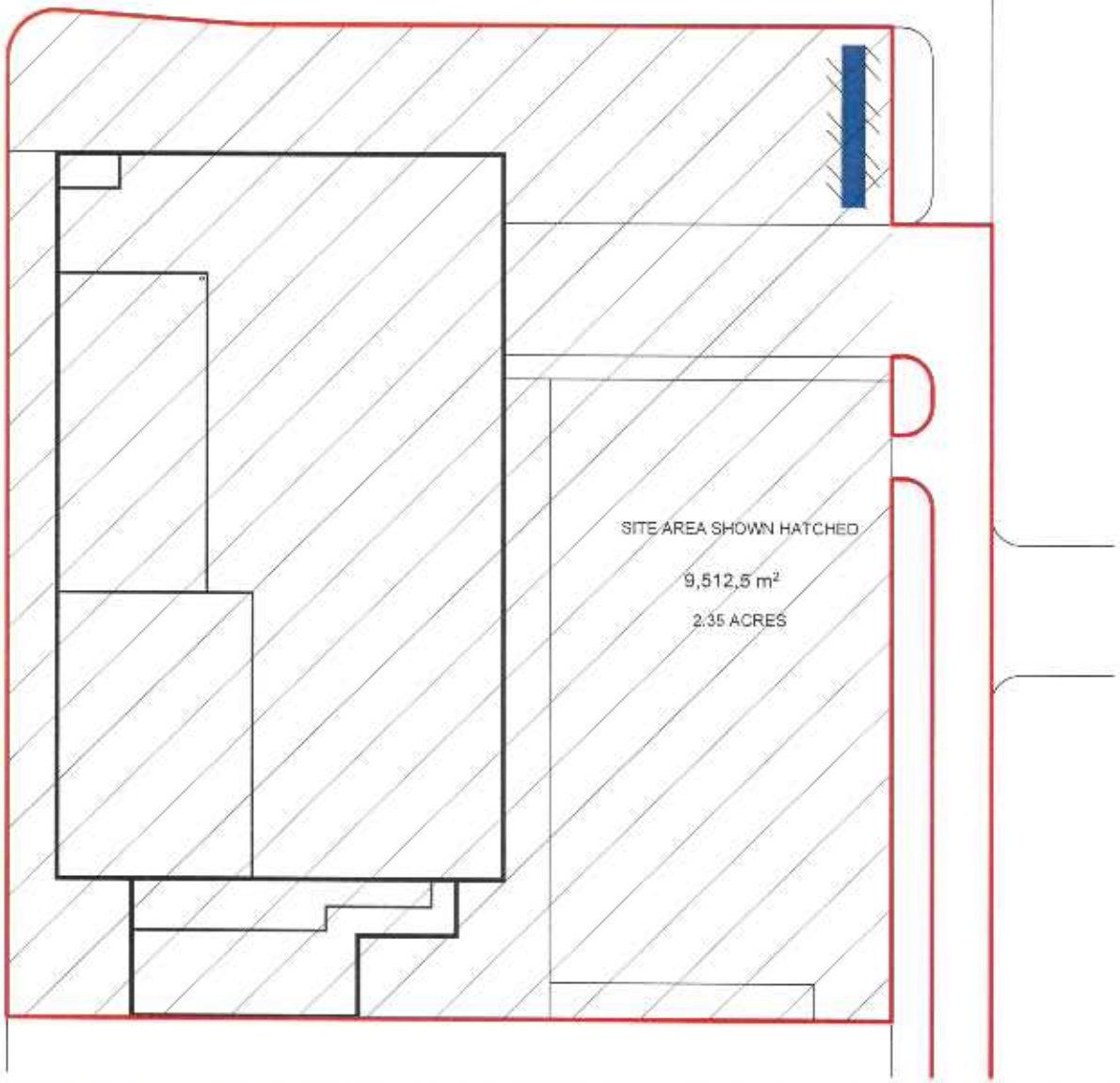
Site boundary plan	Appendix 1a
Plant schematic layout	Appendix 1b
Site layout plan	Appendix 1c

Appendix 1a Location Map.



Location Map. 1.





Rev	Drawn	Date	

Purpose Of Issue

- ☐ Preliminary
- ☐ Comment
- ☐ Approval
- ☐ Tender
- ☐ Construction
- ☐ Planning
- ☐ Building Regulations
- ☒ Record Drawing

Risk Assessment

Ref.	Hazard / Design Action

Project title: **PYROLYSIS - GRIMSBY**

Drawing title: Pyrolysis site area

Client: **JT SAUNDERS**

Drawing No.: **SK02**

Revision No.:

Drawn: PJW | Reviewed: RVM | Scale: 1:500 | Orig: A3 | Date: 27/06/14 | Job No.: 13.037

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SeymourHarrisArchitecture

WASTE ACCEPTANCE PROCEDURE (EMS011)

Introduction

Energy Pyrolysis Ltd. will utilise end-of-life vehicle tyres from the transportation industry to feed the pyrolysis plant. All tyres will be delivered in sealed containers; either in skips or bulk tippers and will only be discharged inside the building.

All deliveries will be assigned a number which will allow tracking of all incoming products. All office and pyrolysis plant personnel will receive training on the appropriate management and reception of waste products, based on the specific risks and requirements at the time.

The following waste types may be received on the site for use as feed stocks at the pyrolysis plant:

- End-of-life vehicle tyres – car
- End-of-life vehicle tyres – van, light commercial
- End-of-life vehicle tyres – large commercial vehicle

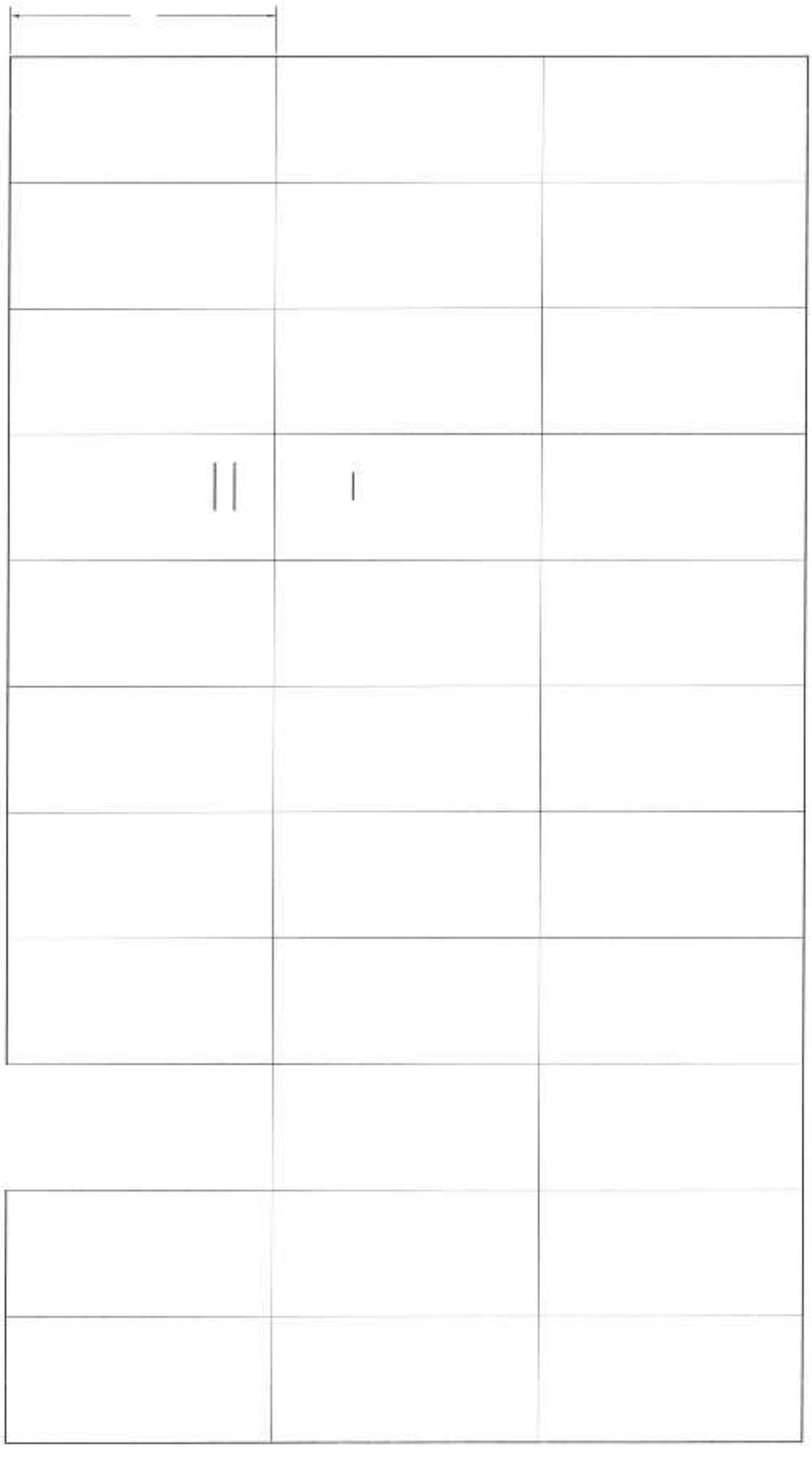
Description	Limits
Non-conforming waste types delivered to site	No waste types outside those specified in the permit and in this document to be received on site.
Waste contaminated with metal, glass, or other out of spec waste.	Acceptable level to be defined.

The limits and control measures for these points are outlined within this document which has been cross referenced to the EMS.

The following management system will be followed at all times to ensure that the process remains within the required critical limits.

1.0 PRODUCT ARRIVAL

All waste tyres destined for the pyrolysis facility must be booked in prior to delivery. All deliveries will be assigned a unique delivery number. No products will be accepted without a delivery number.



1.1 MAIN SITE ENTRY CHECKS

When a vehicle arrives (pre-booked) at the main site security gate the driver will identify himself to the security officer to request entry to the site. He will then be asked to sign in and will be given a site map, a vehicle and a personal pass and be given directions to the Energy Pyrolysis site. Prior to acceptance at the site the haulier will be required to provide a delivery number assigned to him by Energy Pyrolysis. An Energy Pyrolysis operator will then ask the haulier to verify the contents of the load and check the waste transfer note and the European Waste Catalogue code (EWC). Once all information is confirmed the operator will allow the driver on site and discharge the load.

If the delivery paperwork refers to an EWC code other than **16 01 03** (end-of-life tyres) mentioned in the site permit, then the plant operator will be investigate the reasons as to the error. If it is due to error then the waste producer will be informed and asked to issue a corrected Waste Transfer Note (WTN). If it is due to a non-conforming load of waste it will be sent away from the site, and the actions taken recorded on the input materials rejection record (**EMS006**).

1.2 DIRECTIONS ON SITE

The haulier will be shown a map of the site, and directed to the entrance of the pyrolysis plant. The plant operator will verify the delivery number with the driver, check the EWC code and load details, if all is correct the plant operator will open the shutter door into the building.

1.3 SKIP AND BULKER OFF LOADING

The facility operator will open the door on the building and direct the haulier to reverse inside to off load. The plant operator will direct the driver to open the rear door so the load can be visually checked for contamination, and check that the load matches the description on the waste transfer note. If the operator believes that the load does not conform to the list of acceptable wastes, the load will not be tipped, and will be sent off site. This action will be recorded on form **EMS006**. If load is seen to be conforming to waste types following

inspection, the load can be tipped. The plant operator will stand in the safety zone inside the building whilst tipping take place. Once the lorry has been tipped, the operator and driver once again will inspect the tipped load for contamination.

1.4 NON CONFORMING MATERIALS TIPPED

If non-conforming wastes are discovered once the load is tipped, the operator will take the appropriate action as proportionate to the nature and quantity of the non-conforming material:

Type and quantity of Non-Conforming Material	Action to Be Taken
Waste type not listed in permit.	The tipped material will be isolated in the area where it was tipped. Where possible, the material will be re-loaded onto the vehicle on which it arrived for removal from site. If this is not possible, the material will be kept separate until a suitable vehicle can be brought on to site to remove the wastes to an appropriate disposal site. This will be documented in the site diary. Contact will be made with the supplier to re-visit the content of the supplier agreement and discuss ways in which further non-conforming loads can be avoided. Transfer notes for the removal of the waste off site will be kept for a minimum of 2 years.

1.5 AFTER UNLOADING

When the lorry has unloaded the driver will close the door and leave site.

Appendix 4 - Air Quality and Emissions

Name of operator	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

Introduction

Energy Pyrolysis Ltd will utilise end-of-life vehicle tyres as a feedstock in the pyrolysis reactor to obtain light furnace oil, with the potential of further refinement into high quality diesel oil and carbon black, which can be re-used in various manufacturing activities, as products of their controlled process.

Energy Pyrolysis Ltd is to locate the pyrolysis plant adjacent to the Humber Estuary. The Humber Estuary is the second-largest coastal plain estuary in the UK with important habitat and species that are the reason it has been given a number of nature conservation designations under the UK, European and International law. The Humber Estuary is also an important industrial area and trade gateway and its ports and wharves handle 14% of the UK's international trade, which makes it the country's largest port complex. Industries along the estuary include chemical works, oil refinery complexes and power stations.

Air Quality Screening exercise

Initial consultation with the North East Lincolnshire Council involved discussion with Natural England. Natural England objected to the development of the new pyrolysis plant since the submitted proposal did not contain sufficient information to determine if the activities would have

a significant impact on the interest features for which the Humber Estuary SPA (Special Protection Area), SAC (Special Area of Conservation) and Ramsar Site have been classified.

Based on the above, Energy Pyrolysis Ltd undertook an air quality assessment in relation to the pollutants expected to be emitted to air from the planned process.

As the first step in the required air quality assessment, an Air Quality Screening Exercise was undertaken that followed the H1 Environmental Risk Assessment tool (Version 2.4, the latest version at the time of writing) developed by the Environment Agency, which is typically used to assess the risk to the environment and human health during environmental permit applications. The primary focus of the assessment was on air impact, but acid and nitrogen deposition to land within the Humber Estuary was also considered.

Screening for emissions to air (i.e. pollutant is considered insignificant and no further assessment is required) occurs when the relevant process contribution (PC_{air}) is below 1% of the appropriate Environmental Assessment Level (EAL) for long term assessments, and below 10% of the appropriate EAL for short term assessments. Screening for deposition to ground occurs when the relevant process contribution (PC_{ground}) is below 1% of the appropriate critical load (C_{Lo}).

Conclusion

The attached report (Project no: 2014-013.001) demonstrated that all pollutants 'screened out' i.e. were insignificant. It also concludes that all acid and nitrogen deposition is also screened from further assessment.

The screening report also used that the plant would be operating continuously (i.e. 8,760 hours a year) when the actual operational time will be more in line with 2,080 hours (i.e. 8 hours per day, 5 days a week, and 52 weeks a year). As such the Process Contribution values will be far lower due to the reduced operating times.

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from Mabbett™

See a
Difference.

March 2014

Project No: 2014-013.001

Air Quality Screening Exercise

Prepared for:

Energy Pyrolysis Ltd

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Description	Date	Signed
0.1	Draft	21/03/14	M Lynch

Mabbett & Associates Ltd, Corporate and Registered Office:
Mabbett House, 11 Sandylord Place, Glasgow, U.K. G3 7NB
Registered in Scotland No: SC 163378
Info@mabbett.eu www.mabbett.eu
Belfast | Cardiff | Dunfermline | Glasgow

Acknowledgement

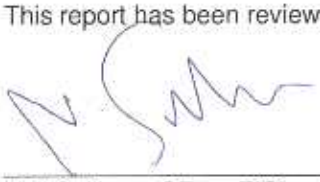
This report was prepared by Mabbett & Associates Ltd (Mabbett) for Energy Pyrolysis Ltd (Energy Pyrolysis) in accordance with a scope of work presented on 03 February 2014 (Ref. 077-2014/LA/GG/lc). This report is based on data provided to Mabbett by Energy Pyrolysis. Should any of the information be incorrect, incomplete or subject to change, Mabbett may wish to revise the report accordingly.

Mabbett wish to acknowledge the assistance of all persons who contributed in the preparation of this report, in particular Simon Warren-Thomas.

This report has been prepared by the following Mabbett personnel:

Michael Lynch, CEng, MIChemE
Senior Environmental Engineer

This report has been reviewed and approved, on behalf of Mabbett, by:



Neil Sullivan, CEng, FIChemE
Senior Environmental Engineer & Project Manager

Table of Contents

Section 1.0: Introduction

Energy Pyrolysis utilise waste rubber, end-of-life tyres and plastic as a feedstock in their pyrolysis reactor to obtain light furnace oil, with the potential of further refinement into high quality diesel oil and carbon black, which can be re-used in various manufacturing activities, as products of their controlled process. Energy Pyrolysis are planning to build a new pyrolysis plant to process waste tyres adjacent to the Humber Estuary.

The Humber Estuary is the second-largest coastal plain estuary in the UK. The estuary's important habitat and species are the reason it has been given a number of nature conservation designations under the UK, European and International law. The Humber Estuary is also an important industrial area and trade gateway. Its ports and wharves handle 14% of the UK's international trade, and it is the country's largest port complex. Industries along the estuary include chemical works, oil refinery complexes and power stations.

Initial consultation with the North East Lincolnshire Council involved discussion with Natural England. Natural England is a non-departmental public body and their statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development. Natural England objected to the development of the new pyrolysis plant since the submitted proposal did not contain sufficient information to determine if the activities would have a significant impact on the interest features for which the Humber Estuary SPA (Special Protection Area), SAC (Special Area of Conservation) and Ramsar Site have been classified.

Based on the above, Natural England suggested that Energy Pyrolysis undertake an air quality assessment in relation to the pollutants expected to be emitted to air from the planned process. As the first step in the required air quality assessment, an Air Quality Screening Exercise is proposed, and Energy Pyrolysis has requested assistance from Mabbett to undertake this task.

Mabbett will follow the H1 Environmental Risk Assessment tool (Version 2.4, the latest version at the time of writing) developed by the Environmental Agency, which is typically used to assess the risk to the environment and human health during environmental permit applications. The primary focus of the assessment will be on air impact, but acid and nitrogen deposition to land within the Humber Estuary will also be considered.

Screening for emissions to air (i.e. pollutant is considered insignificant and no further assessment is required) occurs when the relevant process contribution (PC_{air}) is below 1% of the appropriate Environmental Assessment Level (EAL) for long term assessments, and below 10% of the appropriate EAL for short term assessments.

Screening for deposition to ground occurs when the relevant process contribution (PC_{ground}) is below 1% of the appropriate critical load (CLo).

It is assumed that those reading this report are familiar with the H1 tool (more information can be found at http://www.environment-agency.gov.uk/business/topics/permitting/36414.aspx) and other relevant guidance as noted within.

Section 2.0: Air Quality Screening Exercise

2.1 Introduction

The assessment will be undertaken using the following air emission parameters, as provided by Energy Pyrolysis:

Parameter	Value
Effective Stack Height	17 m (i.e. around 5 m above roof height)
Efflux Velocity (actual)	7.6 m/s
Volumetric Flow Rate (actual)	2,200 m^3/h

Table 2.1: General Emission Parameters

The following pollutant emissions rates will be used, as provided by Energy Pyrolysis:

Pollutant	Release Rate (g/s)	Concentration (mg/m^3)	Pollutant as Entered in H1 Tool
Benzene	2.97×10^{-4}	0.49	"Benzene"
Ethylbenzene	1.85×10^{-5}	0.03	"Ethylbenzene"
Toluene	2.64×10^{-4}	0.43	"Toluene"
Xylene (mixed isomers)	3.92×10^{-5}	0.06	"Xylene, o-, m-, p- or mixed isomers"
Hydrogen chloride	2.11×10^{-4}	0.34	"Hydrogen chloride"
Free Formaldehyde	1.50×10^{-3}	2.45	"Formaldehyde"
Sulphur Dioxide	1.22×10^{-5}	0.02	▪ Input emission as "sulphur dioxide (24 hour mean)" to get worst case EAL for short term assessment. ▪ Also, input emission as "sulphur dioxide (other ecology)" to get worse case EAL for long term assessment. This accounts for the more stringent limits which apply within the Humber Estuary, for the protection of vegetation and ecosystems. It is assumed no sensitive lichen is present.
Carbon Monoxide	1.37×10^{-1}	223.69	"Carbon monoxide"
Hydrogen Sulphide	1.60×10^{-4}	0.26	"Hydrogen sulphide"
Lead	3.42×10^{-5}	0.06	"Lead"
Cadmium	8.39×10^{-6}	1.37×10^{-4}	"Cadmium and its compounds (as Cd)"
Mercury	1.58×10^{-5}	0.03	"Mercury and its compounds, except mercury alkyls (as Cd)"
Fluoride	1.67×10^{-4}	0.27	▪ Input emission as "hydrogen fluoride (as F) (monthly mean)" to get worse case EAL for long term assessment. ▪ Also, input emission as "hydrogen fluoride (as F) (ecological weekly mean)" to get worst case EAL for short term assessment. This accounts for the more stringent limits which apply within the Humber Estuary, for the protection of vegetation and ecosystems.
Total Particulate Matter	2.50×10^{-3}	4.09	▪ Input emission as "particulates (PM10) (24 hr mean)" to get worse case EAL for short term assessment. ▪ Also, input emission as "particulates (PM2.5)" to get worse case EAL for long term assessment.

Table 2.2: Pollutant Emission Rates

Notes:

- The concentrations noted are at actual conditions (e.g. no correction for temperature, pressure).
- For the purposes of this initial screening exercise, it is assumed that the above emission rates apply 8,760 hours per year (i.e. 24/7, all year round).
- The plant manufacturer reports that oxides of nitrogen (NOx) emissions are negligible.
- For the purposes of the screening assessment outlined below, it has been assumed that all fluoride is in the form of hydrogen fluoride.

2.2 Air Screening

All pollutants were screened out, and the results are summarised in Table 2.3 below.

Pollutant	Long Term EAL ($\mu g/m^3$)	Short Term EAL ($\mu g/m^3$)	Long Term			Short Term			Screened?
			PC_{air} ($\mu g/m^3$)	$\%PC_{air}$ of EAL	>1% of EAL?	PC_{air} ($\mu g/m^3$)	$\%PC_{air}$ of EAL	>10% of EAL?	
Benzene	5	-	3.82×10^{-3}	0.1%	No	0.085	-	-	Yes
Ethylbenzene	4,410	55,200	2.37×10^{-4}	<0.1%	No	0.005	<0.1%	No	Yes
Toluene	1,910	8,000	3.34×10^{-3}	<0.1%	No	0.075	<0.1%	No	Yes
Xylene (mixed isomers)	4,410	66,200	5.03×10^{-4}	<0.1%	No	0.011	<0.1%	No	Yes
Hydrogen chloride	-	750	2.7×10^{-3}	-	-	0.060	<0.1%	No	Yes
Free Formaldehyde	5	100	1.93×10^{-2}	0.4%	No	0.431	0.4%	No	Yes
Sulphur Dioxide (24 hour mean)	-	125	1.57×10^{-4}	-	-	0.004	<0.1	No	Yes
Sulphur Dioxide (other ecology)	20	-	1.57×10^{-4}	<0.1%	No	0.004	-	-	Yes
Carbon Monoxide	-	10,000	1.76	-	-	39.2	0.4%	No	Yes
Hydrogen Sulphide	140	150	2.06×10^{-3}	<0.1%	No	0.046	<0.1%	No	Yes
Lead	0.501	-	4.36×10^{-4}	0.1%	No	0.010	-	-	Yes
Cadmium	0.005	-	1.08×10^{-6}	<0.1%	No	2.41×10^{-5}	-	-	Yes
Mercury	0.251	7.51	2.06×10^{-4}	0.1%	No	0.005	<0.1	No	Yes
Hydrogen Fluoride (monthly mean)	16	160	2.41×10^{-3}	<0.1%	No	0.048	<0.1%	No	Yes
Hydrogen Fluoride (ecological weekly mean)	-	0.491	2.14×10^{-3}	-	-	0.048	9.8%	No	Yes
Particulate Matter (PM10)	-	50	3.21×10^{-2}	-	-	0.717	1.4%	No	Yes
Particulate Matter (PM2.5)	25	-	3.21×10^{-2}	0.1%	No	0.717	-	-	Yes

Table 2.3: Air Screening Summary

2.3 Acid and Nitrogen Deposition

No significant sources of nitrogen are expected in the air emissions, and therefore nitrogen deposition (eutrophication) is not expected.

Acidification could potentially occur from the deposition of sulphur contained within sulphur dioxide and hydrogen sulphide. Based on Environment Agency's *H1 Annex F – Air Emissions*, the total acid deposition has been calculated, and is summarised in Table 2.4 below:

Pollutant	PC_{air}	PC_{ground}			Critical Load (CLo)	PC_{ground} as % of CLo	Screened?
	$\mu g/m^3$	$\mu g/m^2/s$	kgS/ha/year	keq/ha/year	keq/ha/year		
Sulphur Dioxide	1.57×10^{-4}	4.71×10^{-6}	7.42×10^{-4}	4.64×10^{-5}	-	-	-
Hydrogen Sulphide	2.06×10^{-3}	6.18×10^{-5}	1.83×10^{-2}	1.15×10^{-3}	-	-	-
TOTAL	-	-	**1.90×10^{-2}**	**1.19×10^{-3}**	**0.643**	**0.2%**	Yes

The CLo used is the most stringent from all features within the Humber Estuary (i.e. acid grassland), based on *MinCLMaxN* from http://www.apis.ac.uk/. Screening occurs when the PC_{ground} is less than 1% of the CLo, as per the most recent Environment Agency guidance (*Changes to Acidity and Nutrient Nitrogen Critical Loads*, May 2012).

It can be seen that all acid and nitrogen deposition is screened from further assessment.

Section 3.0: Conclusion

A variety of air impacts, as well as acid and nitrogen deposition impacts, were considered in this initial screening exercise. In each instance the potential impact was screened from further assessment and can therefore be considered insignificant.

ENVIRONMENTAL RISK ASSESSMENT

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs - who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Dusts/Litter/Odour/Pests						
Dust from movement of waste on concrete surface	Occupiers of Neighbouring industrial units and residential properties.	Wind blown dust	Shift Manager is responsible for checking wind strength and direction and taking corrective action if necessary. If the yard surface becomes dry and more dust is being created as a consequence, the yard surface will be dampened down to minimise dust.	Dust could potentially reach neighbouring industrial units if a strong wind blew on a dry summer day. However this would be unlikely as all activities will be carried out inside the building.	Nuisance - dust on cars, clothing	Not significant
Release of particulate matter (dusts) and micro-organisms	Occupiers of Neighbouring industrial units and residential properties.	Wind blown dust	Permitted waste types do not include dusts, powder or loose fibres so only a minor magnitude of risk is estimated. All material of the permitted waste types are stored in buildings. Shift Manager responsible for management of material.	As above	Nuisance - dust on cars, clothing	Not significant
Litter from outside storage areas	Occupiers of Neighbouring industrial units and residential properties.	Loose waste outside or waste escaping from building	All materials are stored in the buildings. Any loose waste material outside is cleaned up and taken inside for immediate processing as soon as it is discovered.	Litter could potentially reach neighbouring properties. However, all waste management operations are carried out entirely within the building.	Nuisance, loss of amenity and harm to animal health	Low
Waste, litter and mud on local roads and footpaths	Occupiers of Neighbouring industrial units and residential properties	Vehicles entering and leaving the site	Vehicles entering or leaving the site have not been in contact with mud. Shift Manager responsible for ensuring entrances/exits are kept clean and litter free.	Mud is very unlikely to get onto the local roads and litter is collected regularly to minimise the impact.	Road safety, local residents sensitive to mud and litter.	Low

ENVIRONMENTAL RISK ASSESSMENT

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs - who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odour from delivered waste	Neighbouring industrial units and residential properties.	Air	If smell discovered upon delivery, material is rejected as per the Waste Non-conformance and Rejection Procedure.	Odour generation is unlikely to occur due to the nature of waste types. All wastes are treated inside the building.	Nuisance and odour will have a minimal impact on local receptors.	Not significant
Noise from vehicle movements	Occupiers of Neighbouring industrial units and residential properties.	Air	Vehicle movements are reduced to the minimum and scheduled between working hours where possible. The Shift Manager is responsible for ensuring vehicles are turned around efficiently, with least impact on the neighbouring properties and that vehicles are removed from the surrounding roads quickly.	Daily responsibility of Shift Manager, infrequent impact to neighbours to cause nuisance.	Nuisance from noise. Duration should be short as vehicle movements reduced. Noise level - articulated vehicle engine.	Low
Flies in waste	Local human population	Air	If infestation is discovered upon delivery, material is rejected as per the Waste Non-conformance and Rejection Procedure.	Happens very infrequently, procedure in place to deal with immediately once discovered.	Nuisance from flies will have more impact in hot summer months.	Not significant
Rodent infestation	Local human population	Running between neighbouring properties	Outside company employed to implement control solution for pest prevention and elimination, including frequent site visits. Shift Manager required to assess rodent infestation as per weekly environmental review and to action any increase in activity.	Happens very infrequently,as managed on an ongoing basis. Procedure in place to deal with immediately if activity level increases.	Nuisance from rodent, hygiene issues. Procedure in place to manage.	Low
Scavenging animals and scavenging birds	Local human population	Air and over land	Small amounts of food waste accepted on site but the majority of waste types accepted are not attractive to scavenging animals or birds, therefore the risk is low.	Very infrequently.	Nuisance and harm to human health from waste carried off site and faeces.	Not significant
Noise						

ENVIRONMENTAL RISK ASSESSMENT

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs - who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise/vibrations from equipment situated outside	Occupiers of Neighbouring industrial units and residential properties.	Air/ground	No waste treatment equipment will be situated outside.	Low	Impact on local amenity	Low
Noise from general operations	Occupiers of Neighbouring industrial units and residential properties	Air	Preventative Maintenance Plan will be in place to ensure machinery is kept in good working order. Shift Manager to record and action any complaint as per Complaint Procedure.	Daily responsibility of Shift Manager	Nuisance from noise. Noise level reduced as operation inside building	Low
Discharges to Surface Water, Sewer and Groundwater						
Oil Delivery	Surface Water	Surface Water Drains in Yard	Deliveries will be conducted in the building where possible and unloaded close to the storage area so that transporting them is reduced to the minimum. Absorbant granules and pads to be kept in spill station at water treatment plant and internal storage area for containment and removal of spillages.	Low	Pollution of watercourse and local grassland/wetland habitats site downstream	Low
Above ground tanks containing liquid	Local environment	Spillage	All tanks containing liquids will be bunded. The bunds will be purpose made to ensure that they are impermeable and resistant to the stored material and will be designed to catch leaks. Shift Manager will regular inspect	Bund purpose built to prevent leakage and escape.	Harm to local environment and animal health	Low
Storage of cleaning chemicals	Local environment	Spillage	All cleaning chemicals are stored with lids or caps secured. All cleaning chemicals are stored in a cleaners cupboard to ensure substances are not exposed to conditions that could cause a reaction and spillages are contained.	Very low volumes are kept on site and the products are standard household cleaning products. Storage is contained.	Harm to local environment and animal health	Low
Contaminated run off from waste storage area	Groundwater	Soak away to ground	All areas used for storage are in the buildings and have concrete or tarmac surfaces with a programme of regular checks and maintenance to ensure this integrity is maintained.	Low	Pollution of groundwater.	Low
Exceptional Occurances						

ENVIRONMENTAL RISK ASSESSMENT

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs - who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Unauthorised access to site	Bodily injury to person or animal entering site	Direct physical contact	Site perimeter is enclosed with fencing and exits have gates.	Unlikely to happen as site is enclosed and access only permitted by Shift Manager.	Bodily injury	Very low
Arson and / or vandalism causing the release of polluting material to air (smoke or fumes), water or land	Local human population, staff, firefighters vandals or local environment	Air transport of smoke. Run off of firewater from site.	Permitted waste types are non-hazardous so only a medium magnitude risk is estimated.	Unlikely to happen as site is enclosed and access only permitted by Shift Manager.	Respiratory irritation, illness and nuisance to local population. Injury to staff, firefighters or vandals. Pollution of water or land.	Low
Fire (other than arson) within premises	Local human population, staff, firefighters vandals or local environment	Air transport of smoke. Run off of firewater from site.	Hot work permits and evaculation procedures are in place. All staff are trained fire wardens. A fire alarm system is in place. Fire extinguishers are regularly checked and fire extinguishers are serviced. Fire risk assessment has been conducted. All water to surface waters goes via interceptors and the site has a series of penstock valves which could be closed in an emergency.	Unlikely to happen as site due to systems, management and procedures	Respiratory irritation, illness and nuisance to local population. Injury to staff, firefighters or vandals. Pollution of water or land.	Low

Appendix 5 – Resource Efficiency

Energy Source	Use
LPG	Reactor ignition
Electricity	Lighting, computer control systems, feed augers, water pumps, shredder, wire drawers, tyre wall cutters

Reactor igniting

Once the correct operating temperature is achieved in the reactor the LPG supply is stopped as the pyrolysis process then produces sufficient gas to continue the process, which is 'self-sustaining' until the entire process is complete.

The tyre pyrolysis reactor uses an internal atmospheric heating process method, to ensure that the material is heated evenly and automatically adjusts to ensure that the material throughput is consistent and that the temperature is controlled accurately. The reactor rotates at 0.4 rotations per minute which allows for even heat generation as it increases the heating area and improves the cracking rate of the raw materials and reduces the requirement for additional energy to be used to ensure that the process continues efficiently.

Electricity

Low energy lighting will be used wherever possible. Fans have been selected as appropriate to requirements. Fans will be regularly maintained and cleaned to avoid resistance.

Water

Only sufficient water will be used to ensure that the cooling and condensing equipment is operated efficiently.

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EMISSIONS LIMIT VALUES TO AIR (SOP002)

Daily average emission limit value (ELV) in mg/Nm^3	
Total dust	10
Organic substances in the gas or vapour phase as Total Organic Carbon (TOC)	10
Hydrogen chloride (HCl)	10
Hydrogen fluoride (HF)	1
Sulphur dioxide (SO_2)	50
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2) expressed as NO_2	200

Half hourly average ELV in mg/Nm^3		
Polluting substance	100^{th} percentile	97^{th} percentile
Total dust	30	10
Organic substances in the gas or vapour phase as TOC	20	10
Hydrogen chloride (HCl)	60	10
Hydrogen fluoride (HF)	4	2
Sulphur dioxide (SO_2)	200	50
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2) expressed as NO_2	400	200

Average ELV in mg/Nm^3 for heavy metals over a sampling period of a minimum of 30 minutes and a maximum of 8 hours	
Cadmium and its compounds expressed as cadmium (Cd)	Total 0.05
Thalium and its compounds expressed as thalium (Tl)	
Mercury and its compounds expressed as mercury (Hg)	0.05
Antimony and its compounds expressed as antimony (Sb)	Total 0.5
Arsenic and its compounds expressed as arsenic (As)	
Lead and its compounds expressed as lead (Pb)	
Chromium and its compounds expressed as chromium (Cr)	
Cobalt and its compounds expressed as cobalt (Co)	

Copper and its compounds expressed as copper (Cu)	
Manganese and its compounds expressed as manganese (Mn)	
Nickel and its compounds expressed as nickel (Ni)	
Vanadium and its compounds expressed as vanadium (V)	
Average ELV in mg/Nm3 for dioxins and furans over a sampling period of a minimum of 6 hours and a maximum of 8 hours	
Dioxins and furans	0.1

Appendix 8 – Waste minimisation techniques

The pyrolysis operation involves the combustion of tyres, in the absence of oxygen, to reduce the tyre to its constituent parts. The operation itself does not involve the addition of any materials, other than LPG to start the pyrolysis process.

All the materials that are produced are able to be processed in to recoverable components and as such it is not entirely possible to further reduce the amount of waste produced. The waste gases are re-used in the pyrolysis process, tyre wire is despatched to a scrap yard for the metal to be re-processed, the pyrolysis oil is sent for further processing to be used as heating oil and the carbon black is treated and dried to be re-used in tyre manufacture operations.

ACCIDENT MANAGEMENT PLAN

SITE DETAILS	
Operator	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

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Emergency Procedures Contact Details

Emergency services	Emergency	Telephone number
Fire and Rescue Service	999	01472 243700
Ambulance service	999	0115 884 5000
Police	999	101

Medical treatment facility	Telephone number
Diana, Princess of Wales Hospital	01472 874111
Quayside Open Access Centre (DN31 3EF)	01472 344608

Utilities		Telephone number
Electricity	UK Power Networks	0800 028 0247
		0845 601 4516
Water	Anglian Water	0800 771 881
		03457 145 145
Gas	National Grid	0800 111 999

Health and Safety Executive	Telephone number
General enquiries	0300 003 1747
Local office (Sheffield)	Fax 0114 291 2379
Emergency contact (out of hours)	0151 922 9235

Environmental Health (NELC)	Telephone number
General enquiries	01472 313131
Local office (Grimsby)	01472 324753
EA Emergency contact	0800 80 70 60

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2 Introduction

This Accident Management Plan is the result of a risk assessment carried out to identify potential hazards arising from the site and any possible pathways and receptors. At the time of writing this document a Small Waste Incineration Plant Permit is being applied for and therefore this document will be reviewed once the permit is issued.

The site is performing a pyrolysis operation and pre-treatment activities consisting of tyre wire removal, tyre sidewall removal, tyre shredding and associated storage.

The site will operate 2 documents relating to mitigating environmental risks:

- **Environmental Management System** - this document highlights the steps taken to control environmental risks and the systems top record and report these risks
- **Accident Management Plan** – the purpose of this document is to identify potential hazards with a review to implementing mitigation measures designed to minimise the risk and consequences of an accident or incident occurring on site.

3 Environmental Risk Assessment

The Environmental Risk Assessment is reviewed periodically and a copy is available upon request. It is necessary to apportion a level of significance to the environmental risks, the risk prioritisation method used identifies;

- The likelihood of the hazard occurring, without the use of protective measures
- The consequences of the hazard to the environment or human health
- The overall risk of the mitigation used to prevent the hazard occurring

The preventative measures/controls detailed in the environmental risk assessment must be maintained to ensure a high level of good operational practice. To achieve this, the monitoring of relevant control systems, the utilisation of collated data and the review of preventative measures will be carried out. Repairs and/or improvements will be made, where monitoring shows this to be necessary.

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The operation of the Energy Pyrolysis facility is performed by well-trained site personnel and well maintained plant, to store, process and treat the incoming waste streams correctly. Monitoring of procedures and maintenance schedules will aid the risk management process, in relation to environmental controls. General good housekeeping checks will be employed to ensure the smooth and efficient running of the site.

Where there are areas raised that have been identified as potentially low or insignificant, the company will take all of the areas raised seriously and implement the following points covered in the Accident Management Plan to ensure the control of these areas. Areas that have raised a higher risk a specific plan will be implemented to reduce and/or control the risk.

4 Mitigation

The permit will detail the permitted 'Waste types and quantities' for the site and the permit and EMS will frequently be referred to as reference to ensure the correct wastes are received on site. The total quantity of waste applied for on the permit is less than 7,500 tonnes per annum.

The material delivered to the site is of one particular type and will be visually assessed prior to unloading (**EMS011**). It is outlined to all new customers the waste types permitted by the site. However, if wastes are received that do not satisfy the permitted waste types, they will be rejected from site and a record made on the **Waste Rejection Report Form** (**EMS006**).

5 Material storage

The consequences of inappropriate material storage are potentially harmful. The material stored could be either the source of a fire or could assist in the fire spreading (**EMS010**).

Following the acceptance procedures detailed above, material loads will be deposited into the dedicated reception area.

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Material treatment and storage activities are always carried out on an impermeable surface. Regular checks of site surfacing and drainage are carried out and these will be repaired as necessary, to ensure that they retain their integrity (**EMS007**).

6 Breach of site security

Energy Pyrolysis Ltd has gone to great measures and cost to ensure that site security is maintained. The consequences of a breach in site security may be arson, injury to intruders or site personnel.

The site's entrances and the fabric of the building will be inspected weekly and any defects repaired immediately (**EMS007**).

The site has a substantial protective boundary system in place. All visitors and staff have to report to the security office upon arrival at site.

In the event of access by unauthorised persons, security measures will be reviewed and upgraded where necessary. It has to be noted that to date the site has had no unauthorised personnel enter the site.

7 Substances

The site does handle oil and diesels both for general site use and those that are produced on site by the pyrolysis operation. All liquids are to be stored in bunded tanks and/or on bunded pallets. The volumes kept on site are always very low and recorded in the Materials Inventory (**EMS008**). Transfer of substances on site is kept to an absolute minimum and if any substances are transferred this will be done under controlled conditions.

In the event of a spillage inside the building, spill kits are available to deal with any spillages. In the event of a spillage in the outside areas, spill kits are available, with any contaminated waters on the yard area cleaned up with either spill granules or via tanker if necessary. A safe working procedure is in place on the site to cover oil, diesel or chemical spillages (**EMS 001**).

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8 Fires (Fire Management Plan)

The Fire Safety Strategy is:

1. Reduce where possible potential ignition sources.
2. Separation and/or control of the hazards.
3. Control and eliminate sources of ignition.
4. Control fire safety measures and equipment including fire breaks and doors and means of escape.

Without control measures in place the risk of a fire occurring would be significantly increased. The consequences of fire could be harmful with site personnel and visitors at most risk. If a large fire develops, there could also be a risk of harm to local residents, neighbouring businesses and their work forces and the environment. Should an extensive fire, occur the water run off could be harmful to water courses and the fumes could be harmful to the atmosphere and fire personnel.

Fire extinguishers are strategically placed around the site. All fire extinguishers are clearly numbered and tested. All fire equipment is subject to contracts for its maintenance and up keep. Fire equipment is checked monthly and records are kept of this. Site personnel are made aware of their location and have been trained in their correct use.

Fire risk assessment will be undertaken regularly and reviewed as appropriate. All staff members are trained with the sites evacuation procedures. Further training updates and refresher course will be conducted regularly.

No materials will be burned within the confines of the site, other than within the pyrolysis reactor, and any fire of any description is therefore treated as an emergency.

In the event of a major fire on site the potential impact on local residents would be mainly due to the release of smoke & fumes. As with any other organic material, the open air combustion of tyres will produce particulates, carbon dioxide (CO), carbon monoxide, sulphur oxides (SO^2), oxides of nitrogen (NO_x), and volatile organic compounds (VOCs). An extensive fire would also lead to very high temperatures being created that could potentially lead to

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risk to other businesses. Wind direction would need to be considered if a significant fire occurred.

The emergency procedure also includes all local site business emergency contact details should there be a need to contact them.

9 Containment of Fire Water (EMS010)

Should a fire occur the consequences of failing to contain fire water can be harmful as it may enter a water course and cause pollution due to particulates and also chemicals in the firewater runoff entering surface water courses.

10 Failure of main services (EMS 001)

Loss of mains services would not have a major impact on the site for several hours and there would be no environmental risk from the loss of any mains service.

11 Management and prevention of accidents / Incidents.

Energy Pyrolysis Ltd will ensure that:

- All accidents, incidents, dangerous occurrences and emergencies are reported promptly, investigated and recorded accurately and that remedial actions are put in place as required (**EMS003, EMS004, EMS005**)
- Full compliance with the Reporting of Incidents.
- RIDDOR reports carried out as required.
- Core procedures form part of our Environmental Management System.
- Energy Pyrolysis will communicate health and safety and environmental issues to all relevant staff and contractors, in order to minimise the risk of accidents.
- All staff will receive training, appropriate to their post, to help minimise accidents.
- Records are kept to ensure training needs are assessed and addressed (**EMSxxx**)
- The site is audited on a regular basis; accidents and near misses will be investigated and the findings recorded.

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12 Recording Incidents

All incidents that have caused or could result in environmental pollution should be recorded on the Environmental Daily Checksheet (**EMS007**). Also if a complaint is received this should be documented on the Complaint and Feedback Form (**EMS001**).

The Non-Conformance Corrective Action record (**EMS004**) form will enable the details to be recorded of an environmental pollution incident, the corrective action that was taken and a record of signature that the clean-up process has been completed. When completing the form details should be recorded including:

- location of the environmental pollution incident
- who discovered the incident
- what caused the incident
- whether the emergency services, NELC Pollution Control team or Environment Agency were required on site
- actions that were taken to contain the pollution
- the corrective action that was taken and whether any samples were required.

13 Emergency Procedures

Prevention of environmental pollution must be given priority during any emergency event but with full regard to the health and safety of all persons.

Immediate Actions:

- Raise alarm where human safety is at risk
- If necessary, contact emergency services
- Extinguish all naked flames
- Obtain help from other members of staff nearby
- In all cases wear and use appropriate Personal Protective Equipment
- Do not enter confined spaces unless trained in correct procedures and not before all procedures have been satisfied

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Secondary Actions:

Follow appropriate procedures for type of accident that has occurred.

14 Training

All new staff will be shown this Accident Management Plan as part of their induction. Any pollution management or fire training will be recorded on their Employee Training Record Sheet (**EMS012**). Up to date versions of the Accident Management Plan should be displayed on the company notice board for all staff to view.

Training on the use of spill kits will be carried out regularly to ensure that all procedures are clearly understood and to resolve any weakness.

15 Procedures

In the event of an incident on site the following steps must be taken; it is vital that at no point does any lone worker enter any potential risk areas or that any person is put at risk. Clear and concise information must be given at all times. Under no circumstances should any individual be put at risk.

1. Site Manager or Deputy will: Ensure that site evacuation procedures are followed.
2. Site Manager or Deputy will: Ensure no individual is put at risk.
3. Deputy or a person nominated by the Site Manager: Will ensure all individuals are kept out of harm's way and do not venture off in other directions.

ONLY THE SITE MANAGER OR DEPUTY WILL DIRECT PERSONNEL FROM THIS POINT

SITE MANAGER OR SECURITY WILL ENSURE:

4. Fire Brigade is called.
5. Emergency Response Provider is called. (In the event of a Fire or Chemical spill both must be called).
6. NELC Pollution Control team/ Environment Agency is called.
7. Liaise with Fire and Emergency response teams as required.

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Energy Pyrolysis Ltd

FIRE MANAGEMENT PLAN (EMS010)

Introduction

Energy Pyrolysis Ltd. will utilise end of life vehicle tyres from the transportation industry to feed the pyrolysis plant. All tyres will be delivered, stored and processed prior to pyrolysis inside the building. The resultant materials (steel wire, carbon black and oil) will also be stored inside the building in volumes not exceeding those specified in the table below.

This Fire Management Plan uses the Environment Agency guidance note; *Reducing the fire risk at sites storing combustible materials*: Technical Guidance Note (TGN7.01). The principle methods of fire prevention include the following methods;

- Regular turnover of processed tyres
- Building is entirely a no-smoking zone
- Tyre stockpiles will be no more than 50 tonnes each
- Minimum 6m distance from the pyrolysis plant to stockpiles

Material	Max Storage Amount	Flammability
Propane		Very high
Unprocessed tyres	125 tonnes	Medium
Steel wire	15 tonnes	Very low
Carbon black	30 tonnes	Low
Synthetic oil	60 tonnes	Low

What is the fire risk on site?

Tyres are a recognised potential fire source; however this risk is greatly increased when the tyre is reduced in size by chipping or shredding. Size reduction of this nature is only required directly prior to feeding in to the pyrolysis reactor, and as such there will be no need for large piles of tyres or chipped tyres as the operation is geared to the pyrolysis operation and there is no need to stockpile large amounts of tyres.

Prior to placing in the pyrolysis plant the tyres will be stockpiled manually in a herring-bone pattern in the building before having the tyre walls, containing the wire, removed placed on a conveyor belt, chipped and then fed in to the pyrolysis plant.

Operationally, there will be no stockpiles of shred/chipped tyres, other than in the event of a breakdown. In this case the amount to be stored will be minimal, and will not exceed 10 tonnes.

Fire prevention

As the potential for fire at the site is elevated due to the presence of tyres the following methods will be employed to reduce the risk of an outbreak of fire:

- Stored tyres will be kept at least 6m away from sources of ignition (heating pipes, furnaces and the pyrolysis plant)
- Regular inspections will prevent build ups of dust or other flammable materials
- The pyrolysis plant will be cleaned down at the end of every cycle
- The site is located on a secure site and will also be kept secure outside working hours
- Fire extinguishers are situated in locations with easy access
- Staff will undergo regular training and fire drills
- There is a no-smoking policy on site
- An isolation area is located at least 6m away from any storage area on-site if a 'hot-spot' is identified

Self-combustion

Certain materials can spontaneously combust under certain favourable conditions. To minimise this risk the following will be employed;

- No material will be stored on-site for longer than one month
- All materials will be stored inside the building
- All stored materials will be kept out of direct sunlight
- Shredding blades will be kept sharp (the removal of the tyre wires prior to shredding will prolong blade life considerably)
- Only whole tyres, or wall removed tyres, will be stored on site
- Tyres will only be chipped/shredded immediately prior to the pyrolysis activity
- Tyre storage heap temperatures will be regularly checked, and recorded
- Stockpile rotation used to reduce on site storage times
- Carbon black and fuel oil will be stored separately in a bunded area
- All areas are easily accessible to the on-site Fire & Rescue Service in the event of an emergency

- Operational details, plans etc. are given to FRS to enable identification and quantities of materials on site

Fire detection

As fire prevention is better than cure, it is vital that any signs of a potential outbreak are identified and acted upon before a fire breaks out. The following will be carried out;

- Regular inspections of potential areas for a fire to start
- Regular temperature monitoring of stockpiles

Fire suppression/containment

It is important to prevent any fire outbreak from spreading to prevent further damage occurring to the site and the environment. As such the following is in place;

- Fire extinguishers
- Regular fire prevention training

Fire containment/mitigation

In order to limit any potential fire outbreak the following methods are employed;

- Stockpiles of materials are maintained to a minimum
- Separation distances maintained
- Firefighting strategy contained within the Accident Management Plan
- All materials are stored on a concrete surface

Fire water containment

Fire water run-off can cause environmental problems if it is allowed to discharge unabated to a watercourse. To prevent this from occurring the following measures are in place;

- The drainage of the industrial site is all diverted to an effluent treatment plant with numerous shut off valves prior to release to the River Humber
- The building is able to be bunded
- The drain behind the building is able to be isolated to contain any run-off water
- The car park is adjacent and able to be used as a temporary bunded area using portable bunds to contain any fire water

Stack management

Material	Max height	Length/width	Max vol	Max area	Min separation
Whole tyres[1]	5m	20m	450m^3	235m^2	6m

Site layout

The plan shows the layout of the site and identifies the key items of equipment and material storage areas.

Water supplies

As the site is located on a former industrial chemical site the availability of large volumes of water is already in place. The stack is limited to a maximum of 450m^3 and as such requires less water; the site system is able to supply this.

[1] This refers to both whole tyres and those that have had the tyre walls removed

Σnergy Pyrolysis Ltd

TRAINING NEEDS ANALYSIS[1]

Job role	Ops manager	Supervisor	Staff 1	Staff 2
Training required				
Environmental				
CoTC	✓			
Supervision of waste management sites	✓			
EMS awareness	✓	✓	✓	✓
Permit awareness	✓	✓	✓	✓
Waste reception	✓	✓	✓	✓
Waste storage (inc firebreaks)	✓	✓	✓	✓
Awareness of SSSIs etc	✓	✓	✓	✓
Operations/maintenance				
Maintenance of tyre cutter		✓	✓	✓
Maintenance of tyre shredder		✓	✓	✓
Maintenance of conveyors		✓	✓	✓
Maintenance of reactor	✓	✓	✓	✓
Maintenance of flare	✓	✓	✓	✓
Accidents & emergencies				
Fire procedure	✓	✓	✓	✓
Spill response procedure	✓	✓	✓	✓
Accident management plan	✓	✓	✓	✓

[1] Currently in draft format as staff levels are yet to be finalised

ENVIRONMENT MANAGEMENT SYSTEM

Name of operator	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

Document name:	Environment Management System		
Document reference:		Document issue no:	1
Document issue date:			
Authorised by:			

INTRODUCTION

The proposed application site was previously occupied by Bluestar Fibres, formerly known as Courtaulds, until its closure with the continuing economic downturn at the end of 2013 and production was transferred to China by its owners China National Bluestar Corporation.

The operation is based around generating value from the recycling of used vehicle tyres and involves the removal of wire from the tyre carcass, shredding of the vehicle tyres followed by the pyrolysis of the remaining material. This end process will recover the chemical value of the tyre in the form of syngas, carbon black and pyrolysis oil.

The site is located approximately 3 miles to the north-east of Grimsby and is located approximately 120m south-west of the Humber Estuary SSSI (designation 1009830).

1 – MANAGEMENT

1.1 General Management

As the site will operate as a small, hand sort facility the number of staff will be small.

A Technically Competent Manager will supervise the operation and site attendance will be recorded in the Daily Environmental Monitoring Report.

1.2 Accident Management Plan

An Accident Management Plan will be in place for the site on permit issue. The document will be reviewed every 4 years or as soon as practicable after an accident. Any identified changes will be implemented after the review.

1.3 Site security

The main site is accessed only via a security controlled barrier at the site entrance. Entry to the shed itself is via a two operational entrances which are locked outside operating hours. The whole of the site has perimeter fencing and CCTV.

1.4 Site notice board

At the point of the permit being issued, a site notice board shall be made of durable material and placed in a prominent position at the entrance to the site.

2 – OPERATIONS

2.1 Permitted activities

Waste management operations shall be undertaken in accordance with the Small Waste Incineration Plant (SWIP) permit and the Environment Management System (EMS). The waste management operation is limited to the pyrolysis of waste tyres.

2.2 The site boundary

The activities on site shall not extend beyond the site boundary.

2.3 Waste acceptance

Only permitted wastes as specified by the SWIP permit will be accepted on site. The total quantity of waste accepted shall be less than 7,500 tonnes per annum.

3 - EMISSIONS AND MONITORING

3.1 Fugitive emissions of substances

The site infrastructure and operations are managed in such a way that the risk of fugitive emissions shall not cause pollution.

3.1.1 Storage areas of liquids

All liquid wastes produced on site as part of the process will be stored in secure bunded containers and subject to regular inspections.

3.1.2 Inspection and maintenance of engineered containment

All areas will be inspected at least monthly to ensure the continuing integrity and fitness for purpose of their construction.

3.2 Odour

The type of materials accepted reduces the potential for odours.

3.3 Noise and vibration

The proposed treatment facility is being fitted with new modern equipment and therefore all the equipment will meet modern noise criteria. As the facility is located on an industrial estate there are no nearby residential receptors that may be affected by noise.

3.4 Pests, scavenging animals and birds

The permitted waste types accepted on site are unlikely to encourage scavenging animals, birds and other pests.

3.5 Control of mud and debris and loose waste

Internal roads are designed, constructed and maintained to ensure they are adequate for traffic usage.

3.6 Control, monitoring and reporting of dust, fibres and particulates

It is unlikely that the operations will cause dust, fibres and particulates. However, procedures are in place to ensure that any emissions are within the specified limits.

3.7 Control of litter

It is unlikely that the operations will cause the generation of litter, however, the site has a dedicated employee who is responsible for monitoring litter on site and for completing litter picking where necessary.

3.8 Leaks and spillages

Environmental incidents are often the result of mechanical breakdown of plant and vehicles. All areas will be inspected at least monthly to ensure the continuing integrity and fitness for purpose of their construction. A system is in place to ensure that all machinery is correctly serviced and used servicing oils etc. are not stored on site.

3.9 Control of Water

The operation will be carried out entirely within the building, so operations will not be affected by weather conditions.

3.10 Fires on the site

Please see Accident Management Plan and Fire Management Plan.

4 - INFORMATION

4.1 Records

All records required by the permit are retained for a minimum of 6 years.

4.2 Reporting

A record of waste types and quantities removed from the site, monitoring of gases, monitoring of waste water and records of any abnormal operating conditions will be kept and made available for inspection by the Local Authority.

4.3 Notifications

The Local Authority will be notified when any machinery, breakdown or failure of equipment causes significant pollution.

Energy Pyrolysis Ltd

INDEX

SITE DETAILS	
Operator	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

Document ref	Document title	Revision date
	EMS – Energy Pyrolysis Ltd	Within 12 months of permit issue
EMS001	Complaints Record	
EMS002	Complaints Register	
EMS003	Preventative Action Record	
EMS004	Non-Conformance Corrective Action Record	
EMS005	Accident & Incident Record	
EMS006	Waste Rejection Report Form	
EMS007	Daily Environmental Monitoring Report	
EMS007a	Reactor Monitoring Report	After monitoring completion
EMS008	Raw Materials Inventory	Ongoing
EMS009	Accident Management Plan Procedures	
EMS010	Fire Management Plan	
EMS011	Waste Acceptance Procedure	

Σnergy Pyrolysis Ltd

COMPLAINTS RECORD (EMS001)

Who made the complaint? Name: Date & time they made the complaint:	
Address: ☎ Phone/Mobile No: Email:	
Weather conditions:	

What happened/what was it about & when?	
Was anyone else aware of this:	If so who?
Where did it happen?	
What has been done to make sure that it does not happen again?	
Was there anything further to report i.e. damage, pollution: If so, please provide details:	
Who was notified about the complaint?	When were they notified (date & time)?
Please print name and sign:	

Continue overleaf or on a separate sheet if you do not have enough room

Document name:	Complaints Record		
Document reference:	EMS001	Document issue no:	1
Document issue date:			
Authorised by:			

Σnergy Pyrolysis Ltd

COMPLAINTS REGISTER

Complaint No.	Complainant	Date	Date Rectified	Signed Off By
001				
002				
003				
004				
005				
006				
007				
008				
009				
010				
001				
012				
013				
014				
015				
016				
017				
018				
019				
020				
021				
022				
023				
024				
025				

Σnergy Pyrolysis Ltd

PREVENTATIVE ACTION (POTENTIAL NON-CONFORMANCE) FORM (EMS003)

Raised by:		**Item No** (from Register)		**Date**	
Details :					
Preventative Action Required :					
Completed by:				**Date:**	
Management Comments :					
Signed:				**Date:**	
All potential non-conformances will be discussed at the next management review meeting					
Review Meeting Date	**Non Conformance discussed**	**Action Agreed**	**Signed (Mgt Representative)**		
Comments					

Document name:	Preventative Action Record		
Document reference:	EMS003	Document issue no:	1
Document issue date:			
Authorised by:			

Energy Pyrolysis Ltd

NON-CONFORMANCE CORRECTIVE ACTION FORM (EMS004)

Raised by:		**Item No** (from Register)		**Date**	
Details :					
Corrective Action Required :					
Completed by:				**Date:**	
Management Comments :					
Signed:				**Date:**	
All non-conformances will be discussed at the next management review meeting					
Review Meeting Date	**Non Conformance discussed**	**Action Agreed**	**Signed (Mgt Representative)**		
Comments					

Σnergy Pyrolysis Ltd

ACCIDENT (& INCIDENT) RECORD (EMS005)

Date of the Incident:	Time of the Incident:
Place of the Incident:	
What happened/what was it about?	
Was anyone else aware of this?	If so who?
What caused it?	
What has been done to make sure that it does not happen again?	
Is there any continuing threat/danger?	
Does anybody need notifying?	
Who was notified?	When?
Is any further action required?	
Details of further action:	
Further action completed by:	Date completed:
Please print and sign your name:	Date reported:

Continue overleaf or on a separate sheet if you do not have enough space above.

Energy Pyrolysis Ltd

WASTE REJECTION REPORT FORM (EMS006)

Date	Time in/out	Producer/Haulier	EWC	Reason	Destination

Document name:	Waste Rejection Report Form		
Document reference:	EMS006	Document issue no:	1
Document issue date:			
Authorised by:			

ENVIRONMENTAL MONITORING REPORT
Energy Pyrolysis Ltd
Week Commencing:

Time in COTC								

ITEM TO BE CHECKED	FREQUENCY	M	T	W	T	F	S	S	ACTION REQUIRED
FIRE EXTINGUISHERS	MONTHLY								
DRAINS	DAILY								
SPILL KITS	MONTHLY								
DOORS	WEEKLY								
GATES	DAILY								
PRESENCE OF SPILLS?	DAILY								
ENVIRONMENTAL CONTROLS									
IS THE FUEL STORAGE TANK SECURE?	DAILY								
ARE CONTAINMENT MEASURES ADEQUATELY IN PLACE?	DAILY								
IS THE OIL STORE SECURE?	DAILY								
ARE CONTAINMENT MEASURES ADEQUATELY IN PLACE?	DAILY								
IS THE CCTV SYSTEM FUNCTIONING CORRECTLY?	DAILY								
HAS THE CLEAN DOWN PROCESS BEEN CARRIED OUT?	AS REQUIRED								
IS ALL SEPARATED MATERIAL IN THE CORRECT BAYS?	AS REQUIRED								
IS THERE ANY LITTER PRESENT?	DAILY								
IS THE EMERGENCY SPILL KIT PRESENT?	DAILY								
IS THE SITE ID BOARD DISPLAYED?	WEEKLY								
RODENT TRAPS BAITED?	AS REQUIRED								
IS THE LPG TANK SECURE?	DAILY								
CHECK THE CONDITION OF THE BUILDING	WEEKLY								
ARE THE ROLLER SHUTTER DOORS OPERATIONAL?	DAILY								
ANY EMERGENCIES ON SITE?	DAILY								

SITE CHECKS	FREQUENCY	DATE LAST CHECKED				ACTION REQUIRED			
CHECK CONDITION OF IMPERMEABLE SURFACE	MONTHLY								
MACHINERY SERVICING	AS SPECIFIED								
PLEASE DETAIL ANY EXCEPTIONAL ENVIRONMENTAL EVENTS THAT MAY HAVE OCCURRED. WEATHER OR CONTRIBUTING FACTORS SHOULD BE RECORDED. MEASURES TAKEN SHOULD ALSO BE RECORDED.									
Time out COTC									

Energy Pyrolysis Ltd

MATERIALS INVENTORY (EMS008)

Raw Materials	Maximum quantities used per year	Maximum quantity stored at any one time	Storage location
Fuels and Oils			
Red Diesel	None	None	
LPG			Outside
Materials Produced			
Tyres (whole)	7,500 t	250t	Area 1
Tyres (shredded)		125t	Area 2
Oil		30,000 ltr	Area 3
Carbon black		50t	Area 4

A full list of the brand name of chemicals kept and used on site is listed in the site accident management plan along with the relevant COSHH assessments.

Energy Pyrolysis Ltd

ACCIDENT MANAGEMENT PLAN PROCEDURES

SITE DETAILS	
Name of the applicant	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

Index

Document name:	AMP Procedures		
Document reference:		Document issue no:	1
Document issue date:			
Authorised by:			

Σnergy Pyrolysis Ltd

FIRE RESPONSE PROCEDURE (AMP001)

Incident	Response	Equipment used	Location
Explosion	Evacuate area to site entrance. Inform emergency services. Prevent fire water run-off entering surface water drains. Identify all staff present. Ensure entrance is clear for emergency vehicle access.	Telephone	In office
Spontaneous combustion of waste materials	Evacuate area to site entrance. Isolate area. Remove non-combusted material to a separate area. Inform emergency services. Prevent fire water run-off entering external surface water drains. Identify all staff present. Ensure entrance is clear for emergency vehicle access	On site hose pipe Sand	Yard
Mobile machinery fire	Isolate machine. If possible move to an area of Impermeable surfacing. If unable to move machine use powder extinguishers to put out fire to reduce the potential for contaminated liquids. Prevent contaminated liquids entering external surface water drains. Use absorbent material to cover	Dry powder fire extinguisher	On machine

	contaminated liquids. Remove the contaminated material to contaminated material to secure storage and remove to a suitably permitted facility.		
Static machinery fire	Isolate machinery. If possible move to an area of Impermeable surfacing. If unable to move machine use powder extinguishers to put out fire to reduce the potential for contaminated liquids. Prevent contaminated liquids entering external surface water drains. Use absorbent material to cover contaminated liquids. Remove the contaminated material to secure storage and remove to a suitably permitted facility.	Dry powder fire extinguisher	On machine

Σnergy Pyrolysis Ltd

FLOOD RESPONSE PROCEDURE (AMP002)

Incident	Response	Equipment used	Location
Flooding due to blocked drains	Evacuate area to site entrance. Identify all staff present. Move any sensitive materials. If this is not possible use material to 'bund'. Consider containing water from drains by the use of inert material to prevent spread of water.	Sand bags Clean inert material	Yard
Flooding due to burst water main	Evacuate area to site entrance. Prevent any contaminated water entering surface water drains. Identify all staff present. Move any sensitive materials. If this is not possible use material to 'bund'.	Sand bags Clean inert material	Yard
Flooding due to use of fire water	Prevent any contaminated water entering surface water drains. Move any sensitive materials. If this is not possible use material to 'bund'. Temporarily block any surface water drains.	Sand bags Clean inert material	Yard

Σnergy Pyrolysis Ltd

SPILL RESPONSE PROCEDURE (AMP003)

Incident	Response	Equipment used	Location
Fuel/oil delivery spillage	Switch off delivery pumps. Isolate area. Use absorbent material to cover spillage. Use absorbent material to cover spillage. Remove contaminated material to secure storage and remove to a suitably permitted facility.	Sand Clean inert material	Yard
Spillage during transfer, sorting, crushing and/or compaction of wastes.	Isolate area Use absorbent material to cover spillage. Remove contaminated material to secure storage and remove to a suitably permitted facility.	Sand Clean inert material	Yard
Hydraulic pipe rupture	Isolate area Use absorbent material to cover spillage. Remove contaminated material to secure storage and remove to a suitably permitted facility.	Sand Clean inert material	Yard
Spillages during refuelling of plant and equipment	Use drip trays to capture any remaining liquid. Use absorbent material to cover spillage. Remove contaminated material to secure storage and remove to a suitably permitted	Sand Clean inert material	Yard

	facility.		
Slow seepage of liquids from imported contaminated materials. *Slow seepage can be less noticeable than 'spills'.*	Use 'bund' of absorbent material to prevent further spread of 'seepage'. Remove affected material as soon as possible to prevent further contaminated liquid generation. Use absorbent material to cover spillage. Remove contaminated material to secure storage and remove to a suitably permitted facility.	Sand Clean inert material	Yard
Spillage of carbon black	Isolate area. Remove material using a brush and shovel and remove any contaminated material to secure storage and remove to a suitably permitted facility.	Shovel Brush	Office

Σnergy Pyrolysis Ltd

UTILITY SUPPLY FAILURE RESPONSE PROCEDURE (AMP004)

Incident	Response	Equipment used	Location
Sudden power failure	Evacuate area to site entrance. Electrically isolate all relevant machinery. Identify all staff present. If required deploy a standby generator. Try to identify if on site operations have interrupted supply. If so, isolate supply at the main supply box. If not, inform utility company.	Standby generator	Yard
Sudden water supply failure	Try to identify if on site operations have interrupted supply. If so, isolate supply at the stop tap. If not, inform utility company.		

Energy Pyrolysis Ltd

ACCIDENT & INCIDENT MANAGEMENT PLAN

Possible accident/incident	What would the harm be?	How are the chances of it happening reduced?	What to do if it happens
Spillages			
Spillage during transfer of wastes.	Contamination of land, drains and groundwater	Supervise fuel despatch. Use drip trays and spill materials.	Follow the Spill Response Procedure Follow the Waste Acceptance Procedure
Spillage during despatch of oil		Supervise fuel despatch. Use drip trays and spill materials.	
Spillages during refuelling of plant and equipment.		Plant and equipment will be refuelled in designated areas with impervious surface and will use drip trays and spill materials.	
Slow seepage of liquids from materials. Slow seepage can be less noticeable than 'spills'.		Materials will only be stored on impervious surfaces	
Overfilling			
Overfilling of oil / fuel tanks during delivery/despatch	Contamination of land, drains and groundwater	Stock level control checks, supervised delivery/despatch.	Follow the Spill Response Procedure
Failure of plant or equipment			
Leakages; due to faulty pipe work, valves, over-pressure, blockages, corrosion, severe weather, ground movement	Contamination of land, drains and groundwater.	Daily visual inspection and completion of weekly inspection checklist record.	Follow the Spill Response Procedure

etc.		Preventative maintenance regime. Insulation and protection of pipework	
Puncture of vessels and tanks etc due to impact.		Tanks and vessels located within /on secondary containment. Storage locations of drums and non-permanent vessels protected by use of barriers or fencing. Movement of drums and containers using safe techniques.	
Hydraulic hose rupture		Machinery to be fitted with anti-burst valves where possible	
Fire			
Fire	Smoke and pollution, Firewater causes contamination of land, groundwater and watercourses.	Separation of incompatible materials and of combustible materials and ignition sources. Incorporation of fire breaks into site layout and containment of fire water. No smoking policy. Maintain tidy site and	Fire Management Plan

		minimize stockpile of combustible materials. Fire training and emergency drills.	
Cross contamination			
Due to transfer and mixing of incompatible materials, drainage cross connections etc.	Explosion, smoke and pollution of air. Contamination of land, groundwater and watercourses.	Maintain tidy site Maintenance of inventory of substances with material property details. Procedure for contractors to work on site including induction training and permit to work. Fail-safe filling systems.	Follow the Spill Response Procedure
Flood			
Due to ingress of water from a burst water main or use of fire water.	Contamination of raw materials, buildings, land, and groundwater.	Safe location for storage of hazardous materials.	Follow the Flood Response Procedure
Failure of services			
Due to failure of supply; water, electricity, gas supply or sewerage system. Due to utility supply being struck and broken / cut.	Flooding	Provision of standby facilities. Maintenance of up to date plans showing location of utility services. Procedure for contractors to work on site including induction	Follow the Utility Supply Failure Procedure Follow the Flood Response Procedure

		training and permit to work.	
Failure of Containment			
Failure of containment facilities due to land movement, impact, corrosion etc.	Contamination of land, and groundwater	Provision of secondary containment for hazardous liquids. Inspection of primary and secondary containment facilities.	Follow the Spill Response Procedure
Vandalism			
Unauthorised entry and tampering or malicious damage to property plant or equipment	Contamination of land, and groundwater	Secure gate and perimeter fence. Site locked when un-manned, tanks and valves locked when not in use out of hours. Plant and equipment locked in secure storage out of hours.	Follow the Spill Response Procedure

Energy Pyrolysis Ltd

FIRE MANAGEMENT PLAN (EMS010)

Introduction

Energy Pyrolysis Ltd. will utilise end of life vehicle tyres from the transportation industry to feed the pyrolysis plant. All tyres will be delivered, stored and processed prior to pyrolysis inside the building. The resultant materials (steel wire, carbon black and oil) will also be stored inside the building in volumes not exceeding those specified in the table below.

This Fire Management Plan uses the Environment Agency guidance note; *Reducing the fire risk at sites storing combustible materials*: Technical Guidance Note (TGN7.01). The principle methods of fire prevention include the following methods;

- Regular turnover of processed tyres
- Building is entirely a no-smoking zone
- Tyre stockpiles will be no more than 50 tonnes each
- Minimum 6m distance from the pyrolysis plant to stockpiles

Material	Max Storage Amount	Flammability
Propane		Very high
Unprocessed tyres	125 tonnes	Medium
Steel wire	15 tonnes	Very low
Carbon black	30 tonnes	Low
Synthetic oil	60 tonnes	Low

What is the fire risk on site?

Tyres are a recognised potential fire source; however this risk is greatly increased when the tyre is reduced in size by chipping or shredding. Size reduction of this nature is only required directly prior to feeding in to the pyrolysis reactor, and as such there will be no need for large piles of tyres or chipped tyres as the operation is geared to the pyrolysis operation and there is no need to stockpile large amounts of tyres.

Prior to placing in the pyrolysis plant the tyres will be stockpiled manually in a herring-bone pattern in the building before having the tyre walls, containing the wire, removed placed on a conveyor belt, chipped and then fed in to the pyrolysis plant.

Operationally, there will be no stockpiles of shred/chipped tyres, other than in the event of a breakdown. In this case the amount to be stored will be minimal, and will not exceed 10 tonnes.

Fire prevention

As the potential for fire at the site is elevated due to the presence of tyres the following methods will be employed to reduce the risk of an outbreak of fire:

- Stored tyres will be kept at least 6m away from sources of ignition (heating pipes, furnaces and the pyrolysis plant)
- Regular inspections will prevent build ups of dust or other flammable materials
- The pyrolysis plant will be cleaned down at the end of every cycle
- The site is located on a secure site and will also be kept secure outside working hours
- Fire extinguishers are situated in locations with easy access
- Staff will undergo regular training and fire drills
- There is a no-smoking policy on site
- An isolation area is located at least 6m away from any storage area on-site if a 'hot-spot' is identified

Self-combustion

Certain materials can spontaneously combust under certain favourable conditions. To minimise this risk the following will be employed;

- No material will be stored on-site for longer than one month
- All materials will be stored inside the building
- All stored materials will be kept out of direct sunlight
- Shredding blades will be kept sharp (the removal of the tyre wires prior to shredding will prolong blade life considerably)
- Only whole tyres, or wall removed tyres, will be stored on site
- Tyres will only be chipped/shredded immediately prior to the pyrolysis activity
- Tyre storage heap temperatures will be regularly checked, and recorded
- Stockpile rotation used to reduce on site storage times
- Carbon black and fuel oil will be stored separately in a bunded area
- All areas are easily accessible to the on-site Fire & Rescue Service in the event of an emergency

- Operational details, plans etc. are given to FRS to enable identification and quantities of materials on site

Fire detection

As fire prevention is better than cure, it is vital that any signs of a potential outbreak are identified and acted upon before a fire breaks out. The following will be carried out;

- Regular inspections of potential areas for a fire to start
- Regular temperature monitoring of stockpiles

Fire suppression/containment

It is important to prevent any fire outbreak from spreading to prevent further damage occurring to the site and the environment. As such the following is in place;

- Fire extinguishers
- Regular fire prevention training

Fire containment/mitigation

In order to limit any potential fire outbreak the following methods are employed;

- Stockpiles of materials are maintained to a minimum
- Separation distances maintained
- Firefighting strategy contained within the Accident Management Plan
- All materials are stored on a concrete surface

Fire water containment

Fire water run-off can cause environmental problems if it is allowed to discharge unabated to a watercourse. To prevent this from occurring the following measures are in place;

- The drainage of the industrial site is all diverted to an effluent treatment plant with numerous shut off valves prior to release to the River Humber
- The building is able to be bunded
- The drain behind the building is able to be isolated to contain any run-off water
- The car park is adjacent and able to be used as a temporary bunded area using portable bunds to contain any fire water

Stack management

Material	Max height	Length/width	Max vol	Max area	Min separation
Whole tyres[1]	5m	20m	450m^3	235m^2	6m

Site layout

The plan shows the layout of the site and identifies the key items of equipment and material storage areas.

Water supplies

As the site is located on a former industrial chemical site the availability of large volumes of water is already in place. The stack is limited to a maximum of 450m^3 and as such requires less water; the site system is able to supply this.

[1] This refers to both whole tyres and those that have had the tyre walls removed

Energy Pyrolysis Ltd

WASTE ACCEPTANCE PROCEDURE (EMS011)

Introduction

Energy Pyrolysis Ltd. will utilise end-of-life vehicle tyres from the transportation industry to feed the pyrolysis plant. All tyres will be delivered in sealed containers; either in skips or bulk tippers and will only be discharged inside the building.

All deliveries will be assigned a number which will allow tracking of all incoming products. All office and pyrolysis plant personnel will receive training on the appropriate management and reception of waste products, based on the specific risks and requirements at the time.

The following waste types may be received on the site for use as feed stocks at the pyrolysis plant:

- End-of-life vehicle tyres – car
- End-of-life vehicle tyres – van, light commercial
- End-of-life vehicle tyres – large commercial vehicle

Description	Limits
Non-conforming waste types delivered to site	No waste types outside those specified in the permit and in this document to be received on site.
Waste contaminated with metal, glass, or other out of spec waste.	Acceptable level to be defined.

The limits and control measures for these points are outlined within this document which has been cross referenced to the EMS.

The following management system will be followed at all times to ensure that the process remains within the required critical limits.

1.0 PRODUCT ARRIVAL

All waste tyres destined for the pyrolysis facility must be booked in prior to delivery. All deliveries will be assigned a unique delivery number. No products will be accepted without a delivery number.

1.1 MAIN SITE ENTRY CHECKS

When a vehicle arrives (pre-booked) at the main site security gate the driver will identify himself to the security officer to request entry to the site. He will then be asked to sign in and will be given a site map, a vehicle and a personal pass and be given directions to the Energy Pyrolysis site. Prior to acceptance at the site the haulier will be required to provide a delivery number assigned to him by Energy Pyrolysis. An Energy Pyrolysis operator will then ask the haulier to verify the contents of the load and check the waste transfer note and the European Waste Catalogue code (EWC). Once all information is confirmed the operator will allow the driver on site and discharge the load.

If the delivery paperwork refers to an EWC code other than **16 01 03** (end-of-life tyres) mentioned in the site permit, then the plant operator will be investigate the reasons as to the error. If it is due to error then the waste producer will be informed and asked to issue a corrected Waste Transfer Note (WTN). If it is due to a non-conforming load of waste it will be sent away from the site, and the actions taken recorded on the input materials rejection record (**EMS006**).

1.2 DIRECTIONS ON SITE

The haulier will be shown a map of the site, and directed to the entrance of the pyrolysis plant. The plant operator will verify the delivery number with the driver, check the EWC code and load details, if all is correct the plant operator will open the shutter door into the building.

1.3 SKIP AND BULKER OFF LOADING

The facility operator will open the door on the building and direct the haulier to reverse inside to off load. The plant operator will direct the driver to open the rear door so the load can be visually checked for contamination, and check that the load matches the description on the waste transfer note. If the operator believes that the load does not conform to the list of acceptable wastes, the load will not be tipped, and will be sent off site. This action will be recorded on form **EMS006**. If load is seen to be conforming to waste types following

inspection, the load can be tipped. The plant operator will stand in the safety zone inside the building whilst tipping take place. Once the lorry has been tipped, the operator and driver once again will inspect the tipped load for contamination.

1.4 NON CONFORMING MATERIALS TIPPED

If non-conforming wastes are discovered once the load is tipped, the operator will take the appropriate action as proportionate to the nature and quantity of the non-conforming material:

Type and quantity of Non-Conforming Material	Action to Be Taken
Waste type not listed in permit.	The tipped material will be isolated in the area where it was tipped. Where possible, the material will be re-loaded onto the vehicle on which it arrived for removal from site. If this is not possible, the material will be kept separate until a suitable vehicle can be brought on to site to remove the wastes to an appropriate disposal site. This will be documented in the site diary. Contact will be made with the supplier to re-visit the content of the supplier agreement and discuss ways in which further non-conforming loads can be avoided. Transfer notes for the removal of the waste off site will be kept for a minimum of 2 years.

1.5 AFTER UNLOADING

When the lorry has unloaded the driver will close the door and leave site.

Document name:	Waste reception procedure		
Document reference:	EMS011	Document issue no:	1
Document issue date:			
Authorised by:			

Energy Pyrolysis Ltd

ACCIDENT MANAGEMENT PLAN

SITE DETAILS	
Operator	Energy Pyrolysis Ltd
Activity address	West Factory Bale Store Great Coates Industrial Estate Moody Lane Grimsby DN31 2TT
National grid reference	TA 241 127

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Emergency Procedures Contact Details

Emergency services	Emergency	Telephone number
Fire and Rescue Service	999	01472 243700
Ambulance service	999	0115 884 5000
Police	999	**101**

Medical treatment facility	Telephone number
Diana, Princess of Wales Hospital	01472 874111
Quayside Open Access Centre (DN31 3EF)	01472 344608

Utilities		Telephone number
Electricity	UK Power Networks	**0800 028 0247**
		0845 601 4516
Water	Anglian Water	**0800 771 881**
		03457 145 145
Gas	National Grid	**0800 111 999**

Health and Safety Executive	Telephone number
General enquiries	0300 003 1747
Local office (Sheffield)	Fax 0114 291 2379
Emergency contact (out of hours)	**0151 922 9235**

Environmental Health (NELC)	Telephone number
General enquiries	01472 313131
Local office (Grimsby)	01472 324753
EA Emergency contact	**0800 80 70 60**

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2 Introduction

This Accident Management Plan is the result of a risk assessment carried out to identify potential hazards arising from the site and any possible pathways and receptors. At the time of writing this document a Small Waste Incineration Plant Permit is being applied for and therefore this document will be reviewed once the permit is issued.

The site is performing a pyrolysis operation and pre-treatment activities consisting of tyre wire removal, tyre sidewall removal, tyre shredding and associated storage.

The site will operate 2 documents relating to mitigating environmental risks:

- **Environmental Management System** - this document highlights the steps taken to control environmental risks and the systems top record and report these risks
- **Accident Management Plan** – the purpose of this document is to identify potential hazards with a review to implementing mitigation measures designed to minimise the risk and consequences of an accident or incident occurring on site.

3 Environmental Risk Assessment

The Environmental Risk Assessment is reviewed periodically and a copy is available upon request. It is necessary to apportion a level of significance to the environmental risks, the risk prioritisation method used identifies;

- The likelihood of the hazard occurring, without the use of protective measures
- The consequences of the hazard to the environment or human health
- The overall risk of the mitigation used to prevent the hazard occurring

The preventative measures/controls detailed in the environmental risk assessment must be maintained to ensure a high level of good operational practice. To achieve this, the monitoring of relevant control systems, the utilisation of collated data and the review of preventative measures will be carried out. Repairs and/or improvements will be made, where monitoring shows this to be necessary.

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The operation of the Energy Pyrolysis facility is performed by well-trained site personnel and well maintained plant, to store, process and treat the incoming waste streams correctly. Monitoring of procedures and maintenance schedules will aid the risk management process, in relation to environmental controls. General good housekeeping checks will be employed to ensure the smooth and efficient running of the site.

Where there are areas raised that have been identified as potentially low or insignificant, the company will take all of the areas raised seriously and implement the following points covered in the Accident Management Plan to ensure the control of these areas. Areas that have raised a higher risk a specific plan will be implemented to reduce and/or control the risk.

4 Mitigation

The permit will detail the permitted 'Waste types and quantities' for the site and the permit and EMS will frequently be referred to as reference to ensure the correct wastes are received on site. The total quantity of waste applied for on the permit is less than 7,500 tonnes per annum.

The material delivered to the site is of one particular type and will be visually assessed prior to unloading (**EMS011**). It is outlined to all new customers the waste types permitted by the site. However, if wastes are received that do not satisfy the permitted waste types, they will be rejected from site and a record made on the **Waste Rejection Report Form** (**EMS006**).

5 Material storage

The consequences of inappropriate material storage are potentially harmful. The material stored could be either the source of a fire or could assist in the fire spreading (**EMS010**).

Following the acceptance procedures detailed above, material loads will be deposited into the dedicated reception area.

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Material treatment and storage activities are always carried out on an impermeable surface. Regular checks of site surfacing and drainage are carried out and these will be repaired as necessary, to ensure that they retain their integrity (**EMS007**).

6 Breach of site security

Energy Pyrolysis Ltd has gone to great measures and cost to ensure that site security is maintained. The consequences of a breach in site security may be arson, injury to intruders or site personnel.

The site's entrances and the fabric of the building will be inspected weekly and any defects repaired immediately (**EMS007**).

The site has a substantial protective boundary system in place. All visitors and staff have to report to the security office upon arrival at site.

In the event of access by unauthorised persons, security measures will be reviewed and upgraded where necessary. It has to be noted that to date the site has had no unauthorised personnel enter the site.

7 Substances

The site does handle oil and diesels both for general site use and those that are produced on site by the pyrolysis operation. All liquids are to be stored in bunded tanks and/or on bunded pallets. The volumes kept on site are always very low and recorded in the Materials Inventory (**EMS008**). Transfer of substances on site is kept to an absolute minimum and if any substances are transferred this will be done under controlled conditions.

In the event of a spillage inside the building, spill kits are available to deal with any spillages. In the event of a spillage in the outside areas, spill kits are available, with any contaminated waters on the yard area cleaned up with either spill granules or via tanker if necessary. A safe working procedure is in place on the site to cover oil, diesel or chemical spillages (**EMS 001**).

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8 Fires (Fire Management Plan)

The Fire Safety Strategy is:

1. Reduce where possible potential ignition sources.
2. Separation and/or control of the hazards.
3. Control and eliminate sources of ignition.
4. Control fire safety measures and equipment including fire breaks and doors and means of escape.

Without control measures in place the risk of a fire occurring would be significantly increased. The consequences of fire could be harmful with site personnel and visitors at most risk. If a large fire develops, there could also be a risk of harm to local residents, neighbouring businesses and their work forces and the environment. Should an extensive fire, occur the water run off could be harmful to water courses and the fumes could be harmful to the atmosphere and fire personnel.

Fire extinguishers are strategically placed around the site. All fire extinguishers are clearly numbered and tested. All fire equipment is subject to contracts for its maintenance and up keep. Fire equipment is checked monthly and records are kept of this. Site personnel are made aware of their location and have been trained in their correct use.

Fire risk assessment will be undertaken regularly and reviewed as appropriate. All staff members are trained with the sites evacuation procedures. Further training updates and refresher course will be conducted regularly.

No materials will be burned within the confines of the site, other than within the pyrolysis reactor, and any fire of any description is therefore treated as an emergency.

In the event of a major fire on site the potential impact on local residents would be mainly due to the release of smoke & fumes. As with any other organic material, the open air combustion of tyres will produce particulates, carbon dioxide (CO), carbon monoxide, sulphur oxides (SO^2), oxides of nitrogen (NO_x), and volatile organic compounds (VOCs). An extensive fire would also lead to very high temperatures being created that could potentially lead to

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risk to other businesses. Wind direction would need to be considered if a significant fire occurred.

The emergency procedure also includes all local site business emergency contact details should there be a need to contact them.

9 Containment of Fire Water (EMS010)

Should a fire occur the consequences of failing to contain fire water can be harmful as it may enter a water course and cause pollution due to particulates and also chemicals in the firewater runoff entering surface water courses.

10 Failure of main services (EMS 001)

Loss of mains services would not have a major impact on the site for several hours and there would be no environmental risk from the loss of any mains service.

11 Management and prevention of accidents / Incidents.

Energy Pyrolysis Ltd will ensure that:

- All accidents, incidents, dangerous occurrences and emergencies are reported promptly, investigated and recorded accurately and that remedial actions are put in place as required (**EMS003, EMS004, EMS005**)
- Full compliance with the Reporting of Incidents.
- RIDDOR reports carried out as required.
- Core procedures form part of our Environmental Management System.
- Energy Pyrolysis will communicate health and safety and environmental issues to all relevant staff and contractors, in order to minimise the risk of accidents.
- All staff will receive training, appropriate to their post, to help minimise accidents.
- Records are kept to ensure training needs are assessed and addressed (**EMSxxx**)
- The site is audited on a regular basis; accidents and near misses will be investigated and the findings recorded.

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12 Recording Incidents

All incidents that have caused or could result in environmental pollution should be recorded on the Environmental Daily Checksheet (**EMS007**). Also if a complaint is received this should be documented on the Complaint and Feedback Form (**EMS001**).

The Non-Conformance Corrective Action record (**EMS004**) form will enable the details to be recorded of an environmental pollution incident, the corrective action that was taken and a record of signature that the clean-up process has been completed. When completing the form details should be recorded including:

- location of the environmental pollution incident
- who discovered the incident
- what caused the incident
- whether the emergency services, NELC Pollution Control team or Environment Agency were required on site
- actions that were taken to contain the pollution
- the corrective action that was taken and whether any samples were required.

13 Emergency Procedures

Prevention of environmental pollution must be given priority during any emergency event but with full regard to the health and safety of all persons.

Immediate Actions:

- Raise alarm where human safety is at risk
- If necessary, contact emergency services
- Extinguish all naked flames
- Obtain help from other members of staff nearby
- In all cases wear and use appropriate Personal Protective Equipment
- Do not enter confined spaces unless trained in correct procedures and not before all procedures have been satisfied

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Secondary Actions:

Follow appropriate procedures for type of accident that has occurred.

14 Training

All new staff will be shown this Accident Management Plan as part of their induction. Any pollution management or fire training will be recorded on their Employee Training Record Sheet (**EMS012**). Up to date versions of the Accident Management Plan should be displayed on the company notice board for all staff to view.

Training on the use of spill kits will be carried out regularly to ensure that all procedures are clearly understood and to resolve any weakness.

15 Procedures

In the event of an incident on site the following steps must be taken; it is vital that at no point does any lone worker enter any potential risk areas or that any person is put at risk. Clear and concise information must be given at all times. Under no circumstances should any individual be put at risk.

1. Site Manager or Deputy will: Ensure that site evacuation procedures are followed.
2. Site Manager or Deputy will: Ensure no individual is put at risk.
3. Deputy or a person nominated by the Site Manager: Will ensure all individuals are kept out of harm's way and do not venture off in other directions.

ONLY THE SITE MANAGER OR DEPUTY WILL DIRECT PERSONNEL FROM THIS POINT

SITE MANAGER OR SECURITY WILL ENSURE:

4. Fire Brigade is called.
5. Emergency Response Provider is called. (In the event of a Fire or Chemical spill both must be called).
6. NELC Pollution Control team/ Environment Agency is called.
7. Liaise with Fire and Emergency response teams as required.

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North East Lincolnshire Council
Municipal Offices
Town Hall Square
Grimsby
DN31 1HU

17th July 2014

Dear Vicky,

Claim for commercial confidentiality

Further to the submission of information in the attached Schedule 13a permit application, there is certain information contained within this series of documents which we would like to remain confidential and not be placed in the public domain. These documents contain sensitive commercial information, not only from an operational point of view, but also from the plant manufacturer's perspective that both Energy Pyrolysis Limited and Yongle New Energy Environmental Protection Equipment Co., Ltd do not wish to see freely available to competitive businesses.

The company, Energy Pyrolysis Limited, has been able to secure a competitive advantage through the use of innovative (and patented) technology, and do not wish to see this eroded due to the release in to the public domain of this material.

The documents which we would like to be excluded from the public domain are:

- Appendix 1b – Plant schematic layout
- Appendix 3 – Non-technical summary
- Appendix 4 – Air Quality and Emissions
- Appendix 7 – Start up procedure

Yours sincerely,

Graeme Kennett (on behalf of Energy Pyrolysis Ltd.)

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