APPLICATION FOR AN INCINERATOR BAN APPLICABILITY STATUS DECISION

State of Delaware
Department of Natural Resources & Environmental Control
Office of the Secretary

RENEWOIL ENERGY INC.

March 19, 2013
Pyrolysis plant for Scarp Tire and Plastics
RenewOil Energy
2 Keystone Ave, unit 500
Cherry Hill, NJ 08003

Table of Contents

Incinerator Ban Applicability Status Decision Application Instructions

1. Complete all parts of the application. For questions which are not applicable to your project, do not leave blank; present a statement that clearly states why the section is not applicable to your project.

2. Because all applicants' projects are different, this word document template will provide you flexibility for needed space to answer the questions. Please insert additional lines for text where needed for your application. If appropriate, attach extra pages referencing each answer by the corresponding question number.

3. Submit a complete digital copy of the application to:

State of Delaware
Department of Natural Resources & Environmental Control
Office of the Secretary
89 Kings Highway
Dover, DE 19901
Or
DNREC_SBO@state.de.us

4. Comply, if required, or as requested by the DNREC Secretary, with 7 Delaware Code, Chapter 79, Section 7902. If requested, but not completed, your application will not be considered administratively complete until this form is received.

5. Be advised that the application for an Incinerator Ban Applicability Status Decision is a public document. If this application requires you to place confidential information or data in the application to make it administratively complete, note the Delaware Freedom of Information Act (29 Delaware Code, Chapter 100) and DNREC's Freedom of Information Act Regulation, Section 6 (Requests for Confidentiality), for the proper procedure in requesting confidentiality.

PART 1

CERTIFICATION BY APPLICANT

I hereby certify that all the information contained in this Delaware Incinerator Ban Applicability Status Decision Application and in any attachments is true and complete to the best of my belief.

I hereby acknowledge that all information in this application will be public information subject to the Delaware Freedom of Information Act, except for clearly identified proprietary information agreed to by the Secretary of the Department of Natural Resources & Environmental Control.

Dhaval Shah
Print Name of Applicant

_____
Signature of Applicant

Chief Executive Officer
Title

~~February 22, 2013~~ **Resubmital**
Date

PART 2

APPLICANT INFORMATION AND SITE IDENTIFICATION

2.1 Identification of the applicant:

Company Name: **RenewOil Energy, Inc**
Parent Company:
Address: **2 Keystone Ave, Unit 500, Cherry hill, NJ 08003**
Telephone: **856-373-3514**
Fax:856-475-0555
Website:www.renewoil.net

2.2 Primary contact: Please list the name, phone number and email of a preferred contact within your company in case DNREC needs to contact you regarding this status decision:
Dhaval Shah, 856-373-3514, dhavalshah1117@gmail.com

2.3 Site of proposed project (if different than above), including a map of the site and surrounding area: 78 Mcullough Drive, New Castle, DE 19720

2.4 Authorized agent (if any): Currently Undecided

Name:
Address:
Telephone:
Fax:
E-mail:

If you have an authorized agent for this status decision process, provide written authorization from the client for being the authorized agent.

2.5 Is the applicant claiming confidentiality in any section of their application?
YES
NO

If yes, see instructions on page 3, item 5.

PART 3

PROJECT SUMMARY

The pyrolysis method for recycling used tires is a technique which heats whole or shredded tires in a reactor vessel containing an oxygen free atmosphere and a heat source. In the reactor the rubber is softened after which the rubber polymers continuously breakdown into smaller molecules. These smaller molecules eventually vaporize and exit from the reactor. These vapors can be burned directly to produce power or condensed into an oily type liquid, generally used as a fuel. Some molecules are too small to condense. They remain as a gas which can be burned as fuel. The minerals that were part of the tire, about 40% by weight, are removed as a solid. A tire pyrolysis process is a very clean operation and has nearly no emissions or waste.

The properties of the gas, liquid and solid output are determined by the type of feed stock used and the process conditions. For instance whole tires contain fibers and steel. Shredded tires have most of the steel and sometimes most of the fiber removed. Processes can be either batch or continuous. The energy required to drive the decomposition of the rubber include using directly fired fuel (like a gas oven), electrical induction (like an electrically heated oven) or by microwaves (like a microwave oven). Sometimes a catalyst is used to accelerate the decomposition. The choice of feedstock and process can impact the value of the finished products.

The main endproduct of tire pyrolysis has been the solid mineral stream which accounts for about 40% of the output. The steel can be removed from the solid stream with magnets for recycling. The remaining solid material, often referred to as "char", has value as carbon black or possibly as a low grade carbon fuel. Char is the destroyed remains of the original carbon black used to reinforce and provide abrasion resistance to rubber. The solid stream also includes the minerals used in rubber manufacturing. This high volume component of tire pyrolysis, until recently, has made the economic viability very difficult to achieve. Over the past five years two or three companies have discovered ways to recover the carbon in its original form. These companies have been commercially producing and selling recovered carbon black based products that successfully supplement virgin carbon black in rubber and plastics.

PART 4

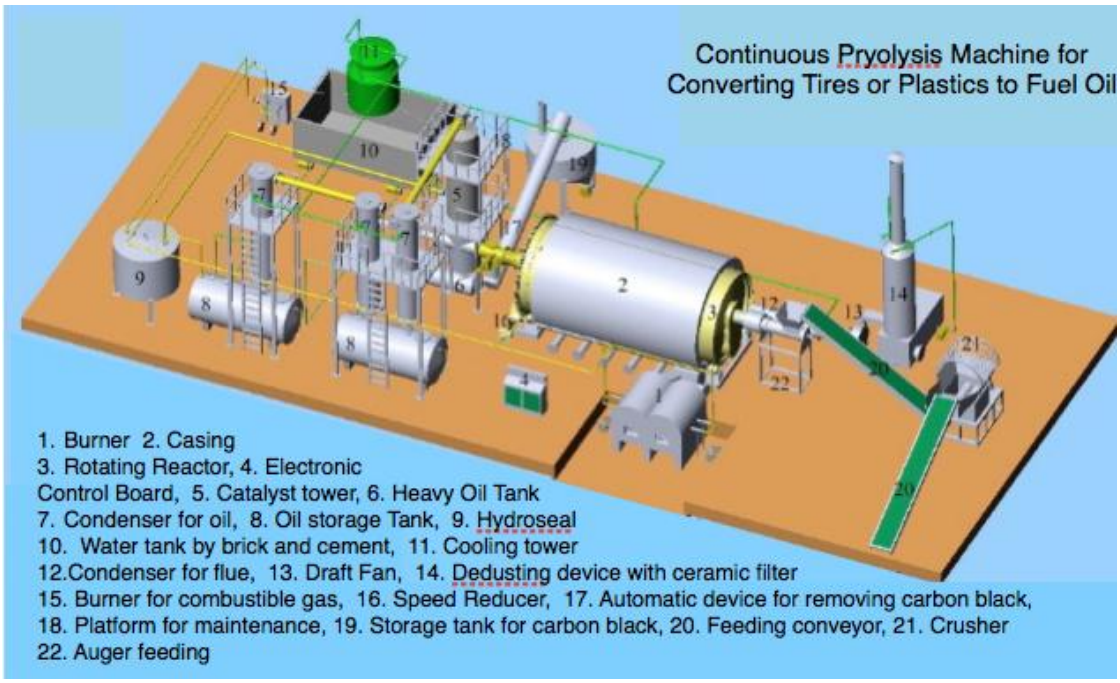
PROJECT INFORMATION

4.1 Explain in detail the technology proposed for this project. Provide the manufacturer's information including a contact for the vendor and if the technology has been used or is in use anywhere else (if so, please provide the location and a contact person). Please provide as much detail as possible.

Main process description for pyrolysis machine

1. We will send the tire pieces/Scrap Plastic after shredding to reactor (No. 3) via feeding conveyor.
2. The tire pieces/Scrap Plastic will be feed into Item No.2 rotatable reactor through Item No.20 spiral feeder which can feed the tires automatically in high temperature (residual from prior Pyrolysis Cycle) in order to make the best use of heating energy
3. We will start heating in Item No.1 burner room when feeding is finished. And the hot air from burner room will go through the channel between reactor and Item No.2 casing for heating the machine quickly and safely.
4. The oil vapor will come out from reactor to manifold when the temperature inside reactor rise up to 150-380℃ (Input: tire pieces; Output: oil vapor 97%, water vapor 3%)
5. The oil vapor will be separated into light oil vapor and heavy oil in manifold. The light oil vapor will go to condenser for oil for cooling first and then become liquid tire oil which is stored in Item No.8 oil storage tank. Meanwhile, the heavy oil will go to Item No. 6 heavy oil tank for storing. (Input: oil vapor and water vapor; Output: heavy oil 3%-5%, light oil 42-45%, water 3%)
6. The light oil vapor will become liquid tire oil and recycled gas which cannot become liquid oil after cooling but can be recycled for heating the machine. The recycled gas will be cleaned in Item No.9 hydroseal first and sent to Item No.1 burner for heating the machine. It cannot be burned completely in burner room sometimes, so it will be send to Item No.15 burner for combustible gas for burning.(Input: recycled gas; Output: CO_2, H_2O)
7. The carbon black will be taken out automatically and full-closed by Item No. 17 spiral device for taking out carbon black after oil finish coming (Input: tire; Output: 35% carbon black). This Carbon Black is saleable as produced but will be processed further to increase Market value. Carbon black will be produced in both Plastic and Tire Pyrolysis but the proportion will be different
8. The whole process is heated by hot air produced from burner room and driven by Item No.13 draft fan. The hot air from casing after heating reactor will be cooled by Item No.12 condenser for flue first and cleaned by Item No.14 dedusting device and then released to the air. (Input: all kinds of fuel; Output: depends on the fuel we are using.

Vendor Mr. Kurt Haisey
Liberty Seamless Enterprise,Inc.
102 East Railroad Ave,
Knoxville, PA, 16928



4.2 Provide an inclusive list of all materials and waste to be used as a feedstock in the process. Include information such as where the material and waste are generated, the process by which they are generated, how they will be transported to the site, and how they will be managed while stored at the site, etc.

Our Raw Feed Stock will Be Used Tire and Recyclable Plastics (1, 2, 4through 7). All will be generated from surrounding Cities (Philadelphia, Newark ,Etc) and transported by Truck to our Facility for Indoor Storage before being consumed by Pyrolysis Unit

4.3 List any by-products, co-products, and wastes generated as a result of this proposed process and how those by-products, co-products, and wastes will be handled.

This process is a completely self-contained Process (after initial start-up heat provided by Gas Burners) with a generation of less than 2% Ash.
Main saleable products will be #2 Oil, Carbon Black, and Scrap Steel.
Heavy oil produced during Pyrolysis will be recycled through the Reactor Chamber to further breakdown to light oils like #2 Oil
The ash produced has no heat value and can be sent to landfill along with trash

4.4. Does the proposed project meet any of the following exemptions?

4.4 a Is it a Crematorium?-- NO

4.4 b Is there disposal of the bodies of animals?-- NO

4.4 c Is there burning of poultry waste or poultry manure at the same site where the waste or manure was generated, which shall include the burning of poultry waste or poultry manure generated upon an adjacent farm?-- NO

4.4 d Is there disposal of materials used in the discovery, development, and manufacture of veterinary products, medicines and vaccines?-- NO

4.4 e Is there the disposition of mortalities from poultry operations in facilities approved by the Delaware Department of Natural Resources and Environmental Control which comply with United States Department of Agricultural Natural Resources Conservation Service Interim Conservation Practice Standard Incinerator 769 or any successor standard?-- NO

None of the above

4.5 Is there combustion or oxidation in any part of your process? If so, please provide a summary of the combustion/oxidation process.

There is no combustion or oxidation in entire process. We apply indirect Heat to the feedstock and let them in a Vacuum. The resulting gases are cooled in a distillation tower and products captured in a closed environment. Non- condensable gases are burned in the reactor so that we do not have to capture and compress the gases

4.6 At any point in your process, is oxygen (O2) a necessary component? If so, please explain.

Oxygen is not a required component. In fact we starve our feedstock of Oxygen to achieve desired result

4.7 Is every point on the property boundary line of the property on which the proposed project is to be located at least 3 miles from every point on the property boundary line of any residence, church, school, park, or hospital?

No

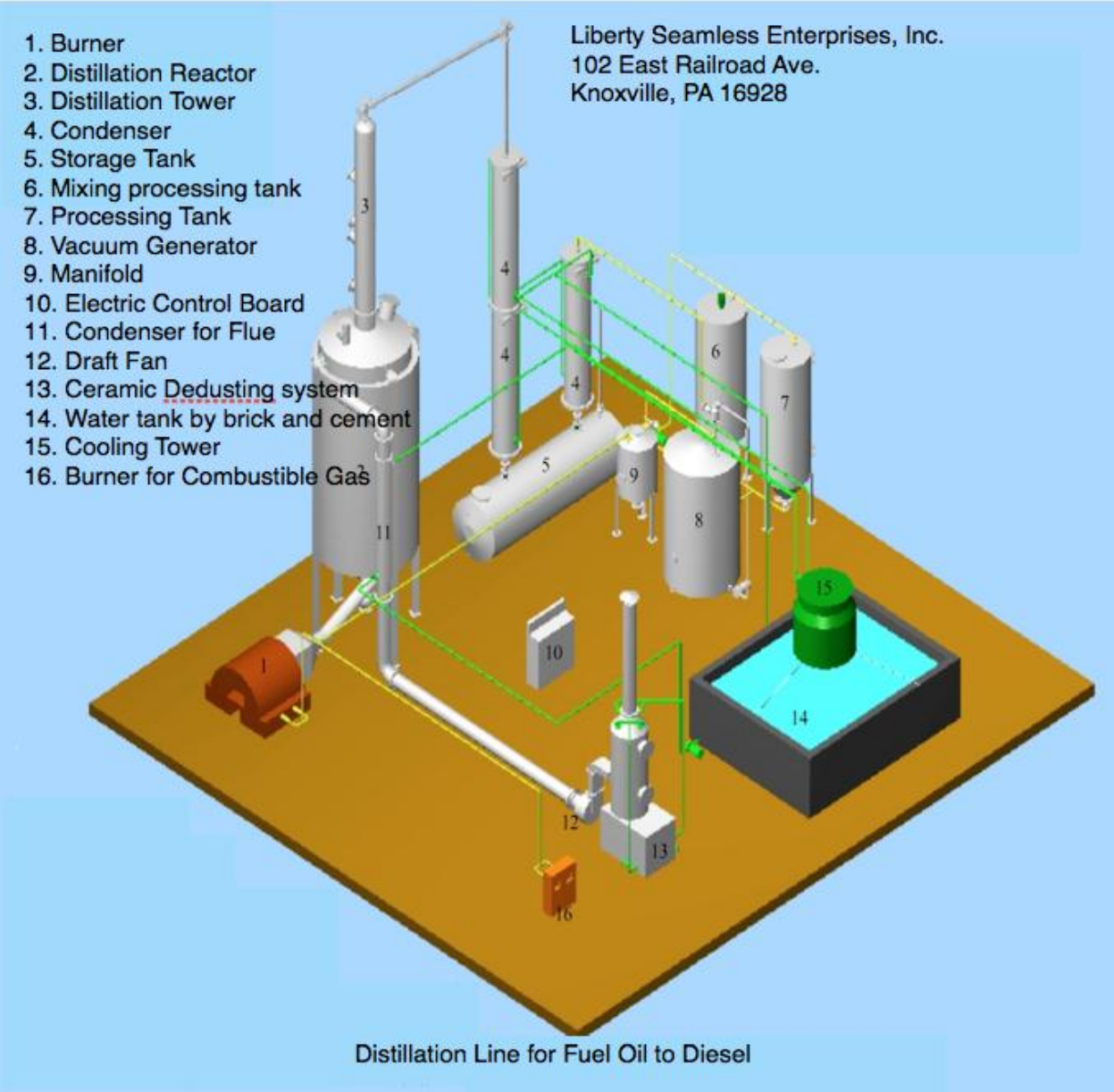
4.8 Explain why your process does not involve the combustion (oxidation) of solid waste and is exempt from the "incinerator ban."

Pyrolysis by definition is a non-combustible Process.

END OF APPLICATION

ATTACHMENTS TO FOLLOW

TIRE OIL TO DIESEL/ #2 OIL DIAGRAM



The Chemical composition of #2 Heating oil and Diesel are very close as #2 heating oil is 85% diesel

TIRE OIL ANALYSIS REPORT

ANALYSIS REPORT
NJ11-0897.001

Analysis	Unit	Method	Min	Max	Results
Copper Corrosion 3hrs@50℃		ASTM D130-10	--	--	1b
Sulfur	%(m/m)	ASTM D2622-10	--	--	0.834
Kinematic Viscosity @40℃	mm²/s	ASTM D445-11	--	--	1.170
Conradson Carbon Residue	%(m/m)	ASTM D189-06(2010)e1	--	--	<0.1
Water Content	%(m/m)	ASTM D1744-92(Withdrawn2000)	--	--	0.144
Ash	%(m/m)	ASTM D482-07	--	--	0.004
Sediment by Extraction	%(m/m)	ASTM D473-07	--	--	<0.01
Gross specific energy	kJ/kg	ISO 8217-2010(Annex E)	--	--	45.94
Net specific energy	kJ/kg	ISO 8217-2010(Annex E)	--	--	42.51
Cold filter plugging point (CFPP)	℃	IP 309-99	--	--	-37
Acid Number	mgKOH/g	ASTM D974-08e1	--	--	1.200

The above reflects our findings at time, date and place of above mentioned only and does not refer to any other matters.

SGS-CSTC OIL, GAS & CHEMICALS SERVICES SGS 29

Authorised Signatory
Oil, Gas & Chemicals Services

1) Precision parameters apply in the determination of the above results. Also refer to ASTM D3244, IP 367 & Appendix E of IP Standard Methods for Analysis & Testing, for utilization of test data to determine conformance with specifications.
2) This report shall not be reproduced, except in full, without written approval of the laboratory.

LIberty Seamless Enterprises, Inc

ANALYSIS REPORT
NJ11-0897.001

Client	:				
Order Number	:	OGCNJ110776	Date Sampled	:	N/A
Sample	:	Tire oil	Date Received	:	03/06/2011
Containers	:	1X5Lplastic bottle	Date Tested	:	07/06/2011
Sample No	:	NJ11-0897.001	Date Reported	:	07/06/2011
Client Sample Id.	:	tire oil after distillation			

Sample Details
Sample Type : N/A Source : Sent by client

The above sample was tested and the following results have been obtained:

Analysis	Unit	Method	Min	Max	Results
Appearance		Visual	--	--	Brown liquid
Color (ASTM)		ASTM D1500-07	--	--	2.5
Density @15℃	kg/L	ASTM D1298-99(2005)	--	--	0.8654
Distillation		ASTM D 86-10a			
IBP	℃		--	--	101.0
10% V/V recovery	℃		--	--	132.0
20% V/V recovery	℃		--	--	145.0
30% V/V recovery	℃		--	--	154.0
40% V/V recovery	℃		--	--	163.0
50% V/V recovery	℃		--	--	172.0
60% V/V recovery	℃		--	--	183.0
70% V/V recovery	℃		--	--	194.0
80% V/V recovery	℃		--	--	210.0
90% V/V recovery	℃		--	--	235.0
95% V/V recovery	℃		--	--	256.5
Decomposition point	℃		--	--	281.5
Flash Point (PMCC)	℃	ASTM D93-10a	--	--	<40

ANALYSIS REPORT
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Copper Corrosion 3hrs@50℃		ASTM D130-10	--	--	1b
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Ash	%(m/m)	ASTM D482-07	--	--	0.004
Sediment by Extraction	%(m/m)	ASTM D473-07	--	--	<0.01
Gross specific energy	kJ/kg	ISO 8217-2010(Annex E)	--	--	45.94
Net specific energy	kJ/kg	ISO 8217-2010(Annex E)	--	--	42.51
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Acid Number	mgKOH/g	ASTM D974-08e1	--	--	1.200

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SGS-CSTC OIL, GAS & CHEMICALS SERVICES SGS 29

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Exhaust after burning Pyrolysis Gas

Object	Sampling time		Method	Unit	Exhaust gas
Benzene	17:30—17:40	Emission Concentration Emission Rate	1) -	mg/m^3 kg/h	0.56 1.07×10^{-3}
Ethylbenzene		Emission Concentration Emission Rate	1) -	mg/m^3 kg/h	0.03 6.65×10^{-5}
Toluene		Emission Concentration Emission Rate	1) -	mg/m^3 kg/h	0.50 9.52×10^{-4}
X&对 ·Ethylbenzene		Emission Concentration Emission Rate	1) -	mg/m^3 kg/h	0.05 1.03×10^{-4}
X·Ethylbenzene		Emission Concentration Emission Rate	1) -	mg/m^3 kg/h	<0.02 <3.80×10^{-5}
Fluorid	17:42—18:02	Emission Concentration Emission Rate	HJ/T67-2001 -	mg/m^3 kg/h	<0.30 <6.00×10^{-5}
Chlorid	16:55—17:25	Emission Concentration Emission Rate	2) -	mg/m^3 kg/h	<0.4. <7.6×10^{-4}
Formaldehyde	16:30—16:50	Emission Concentration Emission Rate	G8/T15516-1995 -	mg/m^3 kg/h	2.87 5.40×10^{-3}
CO_2	18:00-18:15	Emission Concentration Convert Concentration Emission Rate	HU/T57 Potential Electrolysis 3) -	mg/m^3 mg/m^3 kg/h	9 63 0.016
NOX		Emission Concentration Convert Concentration Emission Rate	4) 3) -	mg/m^3 mg/m^3 kg/h	51 350 0.097
NO		Emission Concentration Emission Rate	5) -	mg/m^3 kg/h	30 0.492
H_2S	18:25	-	ASTM D2420-07	mg/m^3	<0.3
Pb	16:35—17:32	Emission Concentration Emission Rate	6) -	mg/m^3 kg/h	0.055 1.23×10^{-4}
Cd		Emission Concentration Emission Rate	6) -	mg/m^3 kg/h	1.59×10^{-4} 3.02×10^{-7}
Hg	18:05—18:25	Emission Concentration Emission Rate	7) -	mg/m^3 kg/h	<0.030 <5.70×10^{-5}

The emissions from re-saleable fuel oil are captured and sent to reactor. The above analysis is after reactor is completed burning the gases.

USED COOKING OIL TO FUELS

Product detail:

- Convert waste cooking oil to a usable diesel fuel.
- Diesel produced from the waste is 98% to 99% pure and can be further refined to produce gasoline, kerosene, and jet fuel.
- The process is simple-by screening the raw product and then mechanically using compression presses to remove any visible solids. Than the product is centrifuged to remove any microscopic solids. The chemical treatment process is than introduced to convert WCO to Diesel
- The process is approved by EPA and does not emit any gases in air.

Plant and equipment detail

- Total 5,000 sq. ft. place is required to operate capacity of 1,740,000 gallons of Waste Cooking Oil per year.
- Extra indoor storage facility is required to store the WCO
- Process and equipment's are approved by EPA and related agencies.
- Limited plumbing and electric lines would be required in advance before delivery of machineries.
- EXIMO-100E Entry Stage WCO System and EXIMO-314 WCO system are needed to clarify and prepare Restaurant WCO
- SnfX Fuel Chemicals are mixed with WCO in the Ratio of 9:1