forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

RISK ASSESSMENT IN TERMS OF REGULATION 8 OF THE WASTE EXCLUSION REGULATIONS

	(For official use only)
File Reference Number:	12/9/11
NEAS Reference Number:	
Date Received:	

Risk Assessment for an application for exclusion of waste stream or portion of waste stream in terms of the National Environmental Management: Waste Act, 2008(Act No.59 of 2008), as amended.

Kindly note that:

1. This form is current as of 01 April 2021. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

2. The information must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. Spaces are provided in tabular format and will extend automatically when each space is filled with typing.

3. Incomplete forms (including information as required in the application form may be returned to the applicant for revision and the inclusion of additional information.

4. Unless protected by law, all information filled in on this application will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this application on request, during any stage of the application process.

BACKGROUND INFORMATION							
Applicant	Illovo Sugar (South Africa) (Pty) Ltd – Noodsberg Sugar Mill						
Contact person	Country SHERQ Manager						
Name	Shaun Ramsunder						
Address	PO Box 194, Durban, South Africa, 4000						
E-mail address	SRamsunder@illovo.co.za						
Telephone	031 508 4591						
Cell phone	084 554 9664						
WASTE GENERATING FACILITIY OR FACILITIES							
Physical address of facility or facilities	1 Oliver Pearce Avenue, Noodsberg, Dalton, South Africa						
GPS co-ordinates at corners of waste generating facility or facilities	**LATITUDE**			**LONGITUDE**			
	29	21	37.09	30	41	11.17	
	29	21	36.71	30	41	12.59	
	29	21	37.40	30	41	12.87	
	29	21	37.77	30	41	11.40	
Waste stream or portion of a waste stream to be excluded from the definition of waste	Filter Cake						
Beneficial use/s	Soil enhancer on sugar cane farms.						
WASTE GENERATING PROCESS							
Detailed description of waste generating process[1]	Please refer to Annexure 1 for the process flow chart for the filter cake waste stream. **Waste stream** Filter cake is the waste stream relevant to this application for exclusion from the waste stream. It is to be used as a fertilizer for sugar cane farms. **Facility process description to produce filter cake** The filter cake is the waste product from the following processes: • Cane Milling: Cane is shredded/chopped. • Juice Extraction: The shredded cane is taken through the diffuser where water is used to “wash” out or extract the juice containing the sucrose. • Clarification: various chemicals (lime and phosphates), flocculants and aids (second source of filter cake waste) are added to the juice to remove the suspended matter and organic matter to clarify the juice. • Filtration: This is allowed to settle as a sludge and is sent through a vacuum filter where the moisture is removed from the sludge. This sludge is the filter cake. **Brief description of the waste source** The filter cake is a nutrient rich sludge that is a collection of solids (cellulosic fibres insoluble organics like waxes, etc.) and liquid components. Chemically the filter cake consists of mainly: Calcium, Potassium, Sodium, Magnesium, with the metallic minor micronutrients present as well, which are described in the						

[1] A process flow chart must be attached with this form for the process description

	filter cake chemical analysis in Attachment 2a: Certificate of Analysis. Other anionic components are: Phosphate, Sulphur, Nitrogen and Carbon among several others but these constitute the major anionic components. The total dissolved solids (TDS) is made up of the soluble nutrient components. There is the organic component which is made up of wax, lipids, and resin, cellulosic fibres, protein and sugars, amongst others. The constitution of filter cake makes it a valuable source of soil nutrients and is used as such in many countries successfully. The following sections will describe the legal requirements for the use of filter cake specifically on sugarcane fields and to minimise any human health and environmental impacts.	
Production process flow chart attached	**YES** Please refer to Annexure 1 for the process flow chart for the filter cake waste stream	NO
Waste classification	**HAZARDOUS**	GENERAL
If hazardous list the hazards of the waste	Type 0 Waste. GN R636 (5). Disposal Prohibitions, Restrictions. (1)(b)- pH - 4.3 1)(c) - Flash at 60^{o}C (1)(q)(ii) - Moisture content - 66%. Future disposal prohibitions: **(1)(r)(iv)** TOC >6%. 41% 2028. GHS PHYSICAL: Flammable liquid and vapour. Flashes at 60^{o}C.	

RISK ASSESSMENT WITHOUT MITIGATION

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
Although the filter cake is not stored anywhere on site, should an emergency happen, the management of the filter cake storage requirements and removal is required.	• Storage for extended clean-up over time and running out of emergency storage space, if the removal rate is low. • Possible overflows into stormwater or sludge dams of the filter cake.	**Health and safety:** • Possible overflows into stormwater or sludge dams of the filter cake and filter cake. This then overflows into the surrounding environment.	High	1	6	1	1	8
Access to filter cake storage area. As per condition above.	**Security and safety.** • Unauthorised entry into the facility. • Unauthorised removal of filter cake.	**Health and safety:** Should the access not be monitored, the removal of filter cake in an unmanaged way can lead to undesired consequence such as accidents, spillages and harm to people and the environment.	Low	1	4	2	2	8
Process of transferring filter cake from an emergency bunded storage area to the receiving vehicles.	**Dust:** Windblown from the process of filter cake if dried transfer with front end loader. Sparks could trigger a fire. **Spillage:** onto area outside of bunded area.	**People - Driver of vehicles and environment and health**: • Risk to health: Eyes and respiratory systems in case of dust. • If filter cake storage	Low	3	4	1	1	18

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
	Onto personnel not authorised to be at the location.	is close to the boundary fence there is a risk to the surrounding environment by wind-blown dust. • Unauthorised personnel may be at risk during the transfer of spillage onto them, onto their clothing. **Economics:** The cost of unnecessary effort to clean-up spillages on site, and that which the vehicle may spill on the route even within the mill.						
Transporting of filter cake by tractor and trailer or other vehicle to farm.	**Health, Safety and Environment**. • Overfilling receiving vehicle trailer with filter cake/ash mixture. • Filter cake has a very strong odour. • Road accidents. • Non –compliance to the Road Traffic Act (RTA)	**Health and Safety:** **Health: People:** Spills onto their clothing when walking on the roads, and splashed on with motor vehicles driving through spilt materials. **Safety** and **compliance to the RTA** • If the vehicle (tractor	Medium	3	5	2	2	27

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
	• Soil contamination. • Affects the flora and local animals, domestic and wild as well as residents. • Natural water sources contamination.	and trailer) integrity is compromised endangering the lives of driver and the public. • If vehicle is not properly maintained, the safety and integrity of the vehicle is compromised further. Includes the driver of the vehicles. • They must be correctly trained and licenced for driving on public roads with consideration. • The judgement by driver of the ability of the vehicle to manage the farm roads without getting stuck and causing spills . **Environmental and reputation:** • Spillage onto the road as well as spreading into the surrounding						

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
		environment by wind and rain. • Damage to reputation as Noodsberg Mill is seen as the owner and source of the filter cake. • Nuisance to vehicles following tractor and trailer by windblown dried filter cake/mixture. • Pedestrians and cyclists affected by filter cake/mixture splashing onto them. Causing a physical and health hazard to people and animals in the vicinity. • Filter cake on the roads and walk ways may have run-off into neighbouring properties and into natural water courses..						
Vehicle filter cake off-loading on designated area.	• Outside of designated area. • Depending on the offloading	**Environment:** Natural water course into the surrounding area affecting flora and	Moderate	4	4	2	2	32

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
	procedure, the vehicle used to offload the mixture may spill residual mixture when travelling to other places to do work.	water.						
Storage at end user facilities	**Health, Safety and Environment** • Run off and possible windblown dust if mixture is allowed to dry. • Unauthorised removal of material. • Biological degradation of natural materials inside body of filter cake thus causing temperatures to rise above the flash point and cause internal perpetual smouldering in body • Smouldering causing cavities. within the body.	**Environment:** • Run-off of any liquid. • Dust of possibly dried out mixture, blown by wind into the surrounding area affecting the flora and water. • Possible contamination of the environment. and natural water source is the principle concern. This will affect the water quality, possible pH change and adding organic load which may cause eutrophication if water source is small. • Unmanaged waste activity by unauthorised	Low	3	4	2	2	24

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
		removal, resulting in possible human health problems and environmental damage. • Smouldering of filtecake left for some time can cause fire in surrounding areas as well creating a safety problem to people walking on top of this waste. They may fall into the cavern farmed and thus be very seriously injured or may be fataly affected.						
Filter cake/mixture management during distribution onto the intended farm soil as the fertilizer/soil enhancer	**Dust:** **Health.** • There may be health impacts from working with the possibly dried filter cake/mixture during the spreading of fertilizer operations. • Possible irritation of eyes if product goes into the eyes.	**Dust:** **Health.** • There may be health impacts from working with filter cake/mixture during the spreading, if it has been allowed to dry out. • Correct PPE is required, to keep the dust/mixture from	Medium	3	5	2	2	27

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
	Environment: • Any mixture run-off from the mixture spreading operations will affect the receiving environment if not managed correctly, especially near to natural water sources.	the skin, hands, feet, eyes and lungs. • The mixture must not be contacted by the skin, feet, hands and eyes. Hence appropriate PPE and management of the material must be adhered to as per SDS. **Environment:** • Any run-off from the operations into the water during the spreading out onto the fields as well as during rain run-off will affect the receiving environment if not managed correctly. • The same management protocol would be required as with commercial fertilizers and lime onto the fields.						
Repeat application onto the same fields.	**Environment:** The soils may have salinity or other	**Environment:** The soil viability to propagate the sugar	Low	2	2	2	1	10

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
	chemical build up if the soils and application are not monitored	cane crops will be affected if not monitored correctly						
Secondary waste generation	**Environment:** • Secondary waste generation would involve filter cake/mixture with a multitude of other contaminant items like litter, oils, grease, as well as other items if the storage sites are not managed. • Filter cake may also contaminate other streams if spillages occur.	**Environment:** Should this contaminated filter cake/mixture escape into the environment through poor management the impacts on the environment: flora, fauna, soil and natural water sources would be impacted.	Low	1	2	2	2	6
Socio-Economic Risks: Positive spin offs at risk should filter cake/mixture beneficiation not be possible.								
Employment and utilization of a renewable resource which is redirected off landfill site.	• Employment within the operation for management of resource distribution from site. • Opportunities created within the local community as the resource is freely available.	**Local economy.** • Particularly amongst the vulnerable community groups: youth and women. • Focus on agricultural projects.	Positive					+
Small business development and	Some members of the community also can	**Local economy.** Particularly amongst the	Positive					+

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
community based projects. Example growing vegetables utilizing this mix as a fertilizer medium.	provide opportunities for themselves by growing healthy vegetables to sell. The filter cake /mixture is not sold.	vulnerable community groups: youth and women. Opportunities for project based use of the resource.						

The following factors and criteria must be used to assess the impacts of the activities:

CRITERIA	
Magnitude (Severity)	**Duration**
10 – Very high	5 – Permanent (longer than 10 years)
8 – High	4 – Long term (5 – 10 years)
6 – Moderate	3 – Medium term (12 months to 5 years)
4 - Low	2 – Short term (< 12 months)
2 - Minor	1 – Immediate
Scale	**Probability (Likelihood)**
5 – International	5 – Definite
4 – National	4 – Highly probable
3 – Regional	3 – Medium probability
2 – Local	2 – Low probability
1 – Site only	1 – Improbably
0 – None	0 - None

Magnitude
Measures the size of the impact

Duration
Duration refers to the lifetime of the impact i.e. how long it will last

Scale
The scale refers to the extent of the impact

Probability
The probability refers to the chance of the impact to occur. The potential impact could be most likely to occur, unlikely, etc.

Assessment of Significance of Impact
Significance rating of the potential impact illustrates the importance of the impact itself. The size of the area affected by pollution may be extremely high but the significance of this effect is dependent on the concentration or level of pollution in that area. In order to determine the significance of an impact, the following method should be used:

Significance (S) = (Magnitude + Duration + Scale) x Probability

The values of S must then be categorised as follows:

RATING		**DESCRIPTION**
SP > 60	High significance	An impact which could influence the decision about whether or to proceed with the activities regardless of any possible mitigation
SP 30 - 60	Moderate significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated
SP < 30	Low significance	Impacts with little real effect and which will not have an influence on or require modification of the activities
+	Positive impact	An impact that is likely to result in a positive consequence/effect

I, SHAUN RAMSUNDER (the Applicant) hereby declare that I have read the completed Risk Assessment form and hereby confirm that the information is, to the best of my knowledge, true and correct

Furthermore, I declare that I am fully aware of my responsibilities in terms of the Waste Exclusion Regulations, and that failure to comply with these Regulations may constitute an offence in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008).

Signature of the applicant[2]/ Signature on behalf of the applicant:

SHAUN RAMSUNDER

Name of Applicant:

COUNTRY SHERQ

Designation

12/06/2023

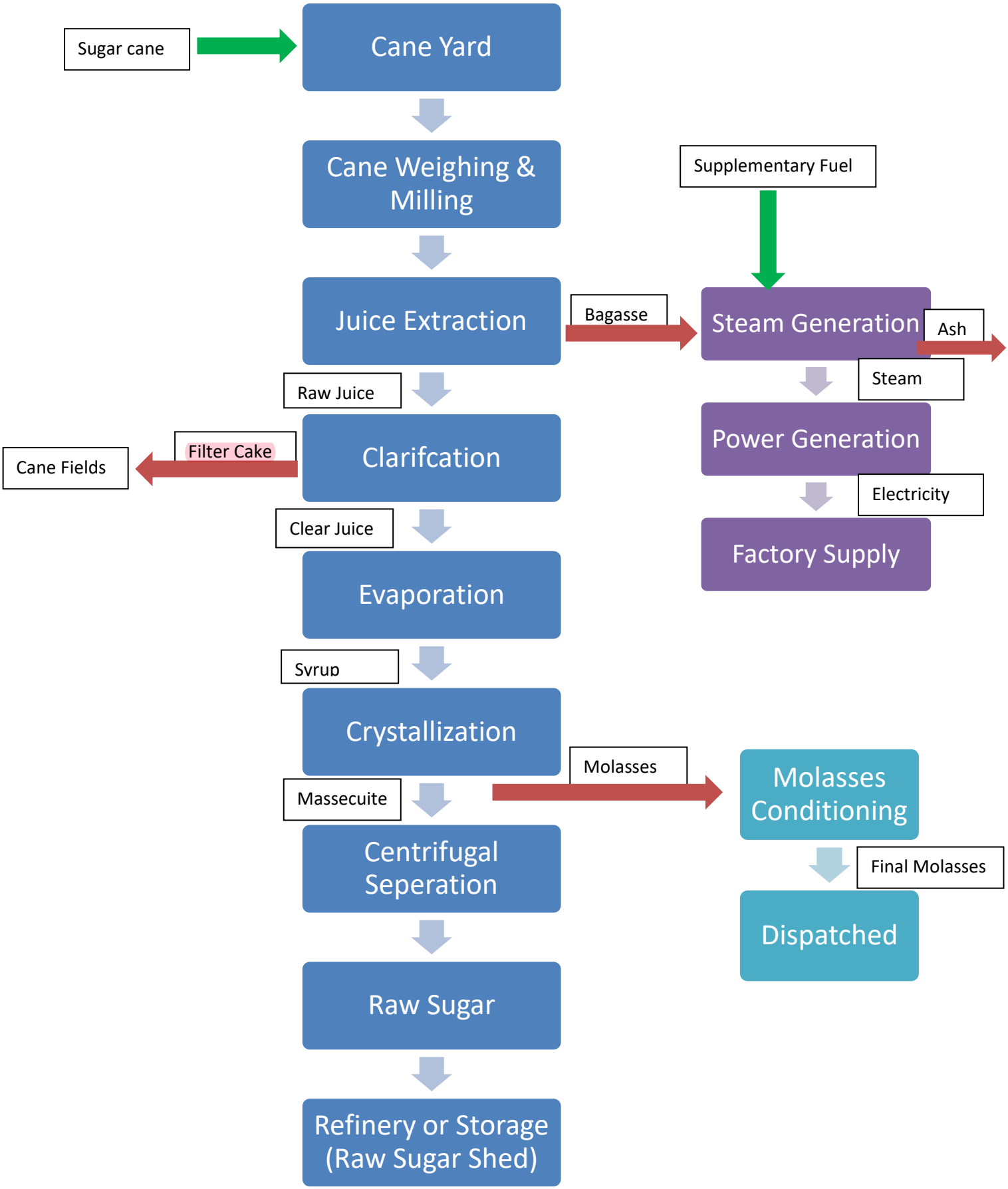
Date:

[2] If the applicant is a juristic person, a signature on behalf of the applicant is required as well as proof of such authority.

Annexure 1:

Process Flow Chart for Noodesberg Sugar Mill

PRODUCTION PROCESS FLOW DIAGRAM



PRODUCTION PROCESS FLOW DIAGRAM