



**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	Umfoloji Sugar Mill (Pty) Ltd
CONTACT PERSON	Umfoloji Sugar Mill – Operations System Manager
NAME	Kelvin Gibbs
ADDRESS	Corner of Mill and Club Lane , Riverview, Mtubatuba, 3935
E-MAIL ADDRESS	KGibbs@usm.co.za
TELEPHONE	035 550 7748
CELL PHONE	083 408 4833

WASTE GENERATING FACILITY OR FACILITIES		
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	Corner of Mill and Club Lane , Riverview, Mtubatuba, 3935	
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES. <i>(Please note that the co-ordinates are for the bagasse storage areas).</i>	LATITUDE	LONGITUDE
	Bagasse storage area A	
	28° 26' 38.73" S	32° 11' 6.01" E
	28° 26' 40.02" S	32° 11' 5.06" E
	28° 26' 41.42" S	32° 11' 6.62" E
	28° 26' 40.04" S	32° 11' 7.37" E
	Bagasse storage area B	
	28° 26' 30.48" S	32° 11' 7.19" E
	28° 26' 33.99" S	32° 11' 6.30" E
	28° 26' 36.68" S	32° 11' 9.15" E
	28° 26' 32.03" S	32° 11' 11.89" E
	WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Bagasse
BENEFICIAL USE/S	Soil conditioner Biofuel Pulp Manufacture	

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE GENERATING PROCESS ¹	<p>Please refer to Annexure 1 for the process flow chart for the bagasse waste stream.</p> <p>Waste stream Bagasse is the waste stream relevant to this application for exclusion from the waste stream. It is to be used as a soil conditioner, biofuel and for pulp manufacture.</p> <p>Waste generating process Sugarcane is mechanically cut and shredded to assist with the extraction process. The shredded cane is fed through a diffuser to extract the sucrose solution and what remains is a fibrous biomass residue called bagasse. The fibrous bagasse is used in the Umfolozi sugar mill process as biofuel for the boilers to produce steam.</p>

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

PRODUCTION PROCESS FLOW CHART ATTACHED	YES Please refer to Annexure 1 for the process flow chart for the bagasse waste stream.	NO
WASTE CLASSIFICATION	HAZARDOUS	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE	<ul style="list-style-type: none"> • Current disposal prohibition/restrictions: <ul style="list-style-type: none"> ○ Type 0, Prohibited Waste - GN R636: <ul style="list-style-type: none"> ▪ (5)(1)(b): Waste with a pH value of <6 or >12. Analytical pH value of: 5.7. ▪ (1)(q)(ii) Waste with a moisture content >40% or that liberates moisture under pressure in landfill conditions, and which has not been stabilised by treatment. Analytical value of: 47 %. • Future disposal prohibition/restrictions: <ul style="list-style-type: none"> ○ Future Prohibited Waste - GN R636: <ul style="list-style-type: none"> ▪ (5)(1)(r)(iv) >6% Total Organic Carbon (TOC). Non-hazardous waste with analytical value of: 87 %. (Prohibited from: Aug 2028) • Landfill Class (RSA) (subject to treatment): <ul style="list-style-type: none"> ○ Type 3 Waste: Class C Landfill (GLB+) -: GN R635: <ul style="list-style-type: none"> ▪ (7)(2)(d) - strictly subject to treatment due to GN R636 (5)(1) prohibited disposal: see above 	

RISK ASSESSMENT WITHOUT MITIGATION

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
Bagasse removal for: <ul style="list-style-type: none"> • agricultural use as a soil conditioner. • bio-fuel for the boilers, • Pulp manufacture. 	Environment and health. <ul style="list-style-type: none"> • Storage over time and running out of storage space, if demand is low. • Possible overflows into stormwater or effluent dams. • Nuisance windblown dust. Economics: Loss of a resource.	<ul style="list-style-type: none"> • Spillage <ul style="list-style-type: none"> ○ Surface and effluent water. ○ Possible ground water pollution ○ Surrounding environment impacted by the spill. • Windblown dust: Health and safety <ul style="list-style-type: none"> ○ Local airborne nuisance dust. ○ Eye damage and skin irritation. ○ Inhalation of the wind blown dust. ○ Ingestion of the dust. 	Low	1	4	1	1	6
Access to bagasse storage area	Security Safety	Health and safety:	Low	1	4	1	2	7

	<ul style="list-style-type: none"> Free flowing access to bagasse storage in case of a fire. Accidents involving people without authorised entry to storage yard. 	<p>The removal of bagasse in an unauthorised and unmanaged way may lead to the following undesired consequences:</p> <ul style="list-style-type: none"> Accidents; Spillages; Health impacts to people; and Environmental impacts. 						
<p>Process of transferring bagasse from the storage area to the receiving vehicles.</p>	<p>Dust: Windblown dust from the process of transfer with front end loader.</p> <p>Spillage: onto area outside of storage area.</p>	<p>Driver of vehicle, employees and environment.</p> <ul style="list-style-type: none"> Risk to health: eyes and respiratory tract irritation in case of dust inhalation. Risk to the surrounding environment by wind-blown dust - flora and natural water sources. 	Low	3	4	1	1	18

		<ul style="list-style-type: none"> • Safety: Accumulation of dust in the factory premises leading to fire risk. 						
Transporting of bagasse to farm.	<p>Spillage:</p> <ul style="list-style-type: none"> • From overfilling receiving vehicle with bagasse. • Road accidents. • Non – compliance to the ROAD TRAFFIC ACT. (RTA) • Soil contamination. • Natural water sources contamination. <p>Dust:</p> <ul style="list-style-type: none"> • Windblown bagasse. 	<p>Environmental reputation:</p> <p>Spillage :</p> <ul style="list-style-type: none"> • Soil, road, surface and groundwater contamination. • Nuisance spillages in communities. • Damage to reputation as USM is seen as the owner and source of the bagasse. <p>Health and Safety:</p> <p>Dust: The windblown dust becomes a nuisance to:</p> <ul style="list-style-type: none"> • driver of vehicles: eyes 	Medium	3	4	2	2	24

		<p>and respiratory systems,</p> <ul style="list-style-type: none"> • following vehicles, • pedestrians and cyclists, • people and animals in the vicinity. <p>Safety and compliance to the RTA</p> <ul style="list-style-type: none"> • vehicle integrity is compromised endangering the lives of driver and the public. • vehicle is not properly maintained, the safety and integrity of the vehicle is compromised further. • Prevents potentially fatal accidents in the case of vehicle (brake) failures 						
--	--	--	--	--	--	--	--	--

		<p>or loss of control of vehicle.</p> <ul style="list-style-type: none"> • Incorrectly licenced driver. 						
Bagasse off-loading with vehicle	<p>Spillage:</p> <ul style="list-style-type: none"> • Outside of dedicated area. • Depending on the offloading procedure, the vehicle used to offload may spill residual mixture when travelling to other places to do work. 	<p>Environment:</p> <ul style="list-style-type: none"> • Spillages and wind blown dust into the natural water course and into the surrounding area affecting flora and water quality. • Windblown dust affecting the health of the people in the immediate vicinity. 	Low	2	4	2	2	16
Storage at end user facilities	<ul style="list-style-type: none"> • Run off and possible windblown dust if bagasse is allowed to dry. • Run-a-way fires. 	<p>Environment:</p> <ul style="list-style-type: none"> • run-off of any liquid/rain, • dust of possibly dried out bagasse, contaminating the surrounding flora ; surface or groundwater resources. 	Low	2	4	2	2	16

		<ul style="list-style-type: none"> Fires destroy the crop and may cause damage to surrounding areas livestock people and natural flora and fauna. 						
<p>Bagasse management during application onto the farm soil and biofuel use.</p>	<p>Dust: impacts from working with the possibly dried bagasse</p>	<p>Health. Dust: There may be health impacts from working with bagasse dust:</p> <ul style="list-style-type: none"> eyes and respiratory tract irritation. <p>Environment:</p> <ul style="list-style-type: none"> Any run-off from the operations resulting in contamination of the soil, surface or groundwater sources. 	Low	2	4	2	1	14
<p>Secondary waste generation</p>	<p>Environment: Secondary waste generation would involve bagasse with a multitude of other items from spills: oils, grease, as well</p>	<p>Environment: Should this contaminated bagasse escape into the environment through poor management the</p>	Low	1	2	2	2	6

	as other items if the storage sites are not managed. Pollution into dams and possibly into surrounding areas.	impacts on the environment: flora, fauna, soil and natural water sources would be impacted.						
Socio-Economic Risks: Positive spin offs at risk should bagasse beneficiation NOT be possible.								
Employment and utilization of a renewable resource.	Employment for the local community for the operation as the resource is freely available..	Local economy. Particularly amongst the vulnerable community groups: youth and women.	POSITIVE					+
Small business development and community based projects. Example growing vegetables utilizing this mix as a soil conditioner.	Some members of the community also can provide opportunities for themselves by growing healthy vegetables to sell. The bagasse is not sold.	Local economy. Particularly amongst the vulnerable community groups: youth and women.	POSITIVE					+
Use as a biofuel for steam generation.	Bagasse is a renewable biofuel , which can be utilized for steam generation as opposed to coal use.	Reduces the use of fossil fuels	POSITIVE					+

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:

$$\text{Significance (S)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

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, Kelvin Gibbs (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 applicant²/ Signature on behalf of the applicant:

Kelvin Gibbs

Name of Applicant:

Operations Systems Manager

Designation

20/09/2023

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 the Bagasse Waste
Stream

Bagasse, Smuts filter cake and Molasses Production

