



**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	Gledhow Sugar Company (Pty) Ltd
CONTACT PERSON	Gledhow Sugar Company SHERQ Manager
NAME	Mr Clement Sithole
ADDRESS	1 Gledhow Mill Road, KwaDukuza, 4450 / PO Box 55, KwaDukuza, South Africa, 4450
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WASTE GENERATING FACILITY OR FACILITIES						
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	1 Gledhow Mill Road, KwaDukuza, 4450					
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES. <i>(please note that the co-ordinates are of the filter cake area).</i>	LATITUDE			LONGITUDE		
	29°	21'	49.94"S	31°	17'	22.51"E
	29°	21'	49.99"S	31°	17'	22.71"E
	29°	21'	50.46"S	31°	17'	22.47"E
	29°	21'	50.39"S	31°	17'	22.27"E
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Filter Cake					
BENEFICIAL USE/S	Soil enhancer / fertilizer on sugar cane farms.					

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE GENERATING PROCESS ¹	<p>Please refer to Annexure 1 for the process flow chart for the filter cake waste stream.</p> <p>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 and soil enhancer for sugar cane farms.</p> <p>Facility process description to produce filter cake</p> <ul style="list-style-type: none"> • 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.

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

	<ul style="list-style-type: none"> • 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. <p>Brief description of the waste source</p> <p>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 filter cake chemical analysis in Attachment 3a: Certificate of Analysis.</p> <p>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.</p> <p>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.</p>	
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	<p>Type 0 Waste. GN R636 (5). Disposal Prohibitions, Restrictions.</p> <p>(5)(1)(b), Waste with a pH value of <6 or >12. pH: Analytical value of: 4.6 pH.</p> <p>(5)(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: 71 %</p> <p>Future disposal prohibitions: (1)(r)(iv) TOC >6%. 69% 2028.</p>	

RISK ASSESSMENT WITHOUT MITIGATION

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
<p>Context:</p> <ul style="list-style-type: none"> • Illovo Gledhow Sugar Company (GSC) has on their SHEQ system: - The Illovo Code of Conduct and Business Ethics and an overarching ILLOVO SHERQ policy. - Illovo has developed its own Integrated Risk Management System (IIRMS) to ensure that the standards to which the business conforms are unified under a single platform, guiding and measuring compliance. - IIRMS guidelines have been developed from best practices in the Illovo Group, and from best practice in their 								

<p>industry where necessary.</p> <ul style="list-style-type: none"> - IIRMS assists in the management of environmental risks at Illovo and ensures that these standards are implemented by the whole group. • Waste management plan. • Safety Data Sheet is a document for management of the filter cake to minimise any risk. • The GHS classification and the SSV comparison of the filter cake give very good indications of the hazards encountered by all affected stakeholders when working with ash. It helps to identify areas which must be managed in order to minimise or eliminate risks. The intention is to maximize the 					
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intended beneficial use of the waste, while minimising any unacceptable impacts to the people, the environment and the economy.								
Filter cake removal for soil enhancer / fertilizer.	<ul style="list-style-type: none"> Storage over time and running out of storage space, if demand is low. Possible overflows into stormwater or sludge dams. 	Environment <ul style="list-style-type: none"> Possible overflows into stormwater or sludge dams. This then overflows into the surrounding environment. 	High	1	6	1	1	8
Access to filter cake storage area	Security and safety <ul style="list-style-type: none"> 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: accidents, spillages and harm to people and the environment.	Low	1	4	2	2	8
Process of transferring filter cake from the storage bins to the receiving vehicles.	Dust: Windblown from the process of filter cake (if dried) transfer by trucks. Sparks could trigger a fire. Spillage:	People: Driver of vehicles and environment and health: <ul style="list-style-type: none"> eyes and respiratory systems in case of 	Low	3	4	1	1	18

	<ul style="list-style-type: none"> • Areas outside of the filter cake storage area. • Onto personnel not authorised to be at the location. 	<p>dust from dried spilt filter cake, or from dust contaminated with filter cake in the area.</p> <ul style="list-style-type: none"> • If filter cake storage is close to the boundary fence there is a risk to the surrounding environment by the wind-blown dust. • Unauthorised personnel not permitted to be in the area may be at risk during the transfer of spillage onto them, onto their clothing. <p>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.</p>						
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<p>Transporting of filter cake to the growers.</p>	<p>Health, Safety and Environment.</p> <ul style="list-style-type: none"> • Overfilling receiving vehicle trailer with filter cake. • Spillage onto roads, causing a nuisance as well as a safety hazard for vehicles by slipping. • Filter cake has a very strong odour. • Road accidents. • Non-compliance to the ROAD TRAFFIC ACT. (RTA) • Soil contamination from spillages. • Stormwater and natural water resource contamination by unmanaged washing of spillages from roads into the stormwater drains. 	<p>Health and Safety:</p> <p>Health: People:</p> <ul style="list-style-type: none"> • spills onto their clothing when walking on the roads, and splashed on with motor vehicles driving through spilt materials. • Spills within residential areas causing a great nuisance. <p>Safety and compliance to the RTA</p> <ul style="list-style-type: none"> • The vehicle transporting the filter cake's 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 	<p>Medium</p>	<p>3</p>	<p>5</p>	<p>2</p>	<p>2</p>	<p>27</p>
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	<ul style="list-style-type: none"> • Affects the flora and local animals, domestic and wild as well as residents. • Natural water sources contamination. 	<p>further. Includes the driver of the vehicles.</p> <ul style="list-style-type: none"> • 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 . <p>Environmental and reputation:</p> <ul style="list-style-type: none"> • Spillage onto the road as well as spreading into the surrounding environment by wind and rain. • Damage to reputation as GSC is seen as the owner and source of the filter cake. • Nuisance to vehicles following 						
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		<p>the transportation vehicle by windblown filter cake spray.</p> <ul style="list-style-type: none"> • Pedestrians and cyclists affected by filter cake 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. 						
Filter cake off-loading from the vehicle.	<p>Spillage:</p> <ul style="list-style-type: none"> • Outside of designated area. • Depending on the offloading procedure, the vehicle used to offload the filter cake may spill 	<p>Environment:</p> <p>Spillages and wind blown dust in the natural water course and into the surrounding area affecting flora and water quality.</p>	Moderate	4	4	2	2	32

	residual filter cake when travelling to other places to do work.							
Storage at end user facilities	<p>Health, Safety and Environment:</p> <ul style="list-style-type: none"> • Run off and possible windblown dust if filter cake is allowed to dry. • Unauthorised removal of filter cake. • 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 the body of the stored filter cake. • Smouldering causing cavities within the body. 	<p>Environment:</p> <ul style="list-style-type: none"> • Run-off of any liquid. • Dust from dry filter cake, blown by wind into the surrounding area affecting the flora and watercourses. • Possible contamination of the environment and natural watercourses 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

		<p>removal, resulting in possible human health problems and environmental damage.</p> <ul style="list-style-type: none"> • Smouldering of filter cake left for some time can cause fire in surrounding areas as well as 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 fatally affected. 						
<p>Filter cake management during distribution to the growers for use as a soil enhancer / fertilizer.</p>	<p>Dust: Health:</p> <ul style="list-style-type: none"> • There may be health impacts from working with the possibly dried filter cake during the spreading of fertilizer operations. 	<p>Dust: Health:</p> <ul style="list-style-type: none"> • There may be health impacts from working with filter cake filter cake during the spreading if it has been allowed to dry out. • Correct PPE is required, to keep 	<p>Medium</p>	<p>3</p>	<p>5</p>	<p>2</p>	<p>2</p>	<p>27</p>

	<ul style="list-style-type: none"> • Possible irritation of eyes if product goes into the eyes. <p>Environment: Any run-off from the filter cake spreading operations will affect the receiving environment if not managed correctly, especially near to natural water sources.</p>	<p>the dust and the filter cake from the skin, hands, feet, eyes and lungs.</p> <ul style="list-style-type: none"> • The filter cake 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. <p>Environment:</p> <ul style="list-style-type: none"> • 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 						
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		fertilizers and lime onto the fields.						
Repeat application onto the same fields.	Environment: The soils may have salinity or other chemical build up if the soils and application are not monitored	Environment: The soil viability to propagate the sugar cane crops will be affected if not monitored correctly	Low	2	2	2	1	10
Secondary waste generation	Environment: <ul style="list-style-type: none"> Secondary waste generation would involve filter cake 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 escape into the environment through poor management the impacts on the environment: flora, fauna, soil and natural watercourses would be impacted.	Low	1	2	2	2	6
Socio-Economic Risks: Positive spin offs at risk should filter cake beneficiation not be possible.								
<ul style="list-style-type: none"> Employment and utilization of a renewable resource which is redirected off landfill site. 	<ul style="list-style-type: none"> Employment within the operation for management of resource distribution from site. 	Local economy: <ul style="list-style-type: none"> Particularly amongst the vulnerable community groups: youth and women. 	Positive					+

	<ul style="list-style-type: none"> • Opportunities created within the local community as the resource is freely available. 	<ul style="list-style-type: none"> • Focus on agricultural projects. 						
<ul style="list-style-type: none"> • Small business development and community based projects. Example growing vegetables utilizing this mix as a fertilizer medium. 	<ul style="list-style-type: none"> • Some members of the community also can provide opportunities for themselves by growing healthy vegetables to sell. • The filter cake is not sold. 	<p>Local economy:</p> <ul style="list-style-type: none"> • Particularly amongst the vulnerable community groups: youth and women. Opportunities for project based use of the resource. 	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:

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

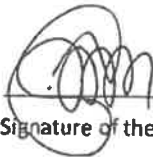
The values of S must then be categorised as follows:

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
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I, Clement Sithole (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: Waset Act, 2008 (Act 59 of 2008).



Signature of the applicant²/ Signature on behalf of the applicant:

Clement Sithole

Name of Applicant:

SHERQ Manager

Designation

23/06/23

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 FILTER CAKE WASTE
STREAM**

