



**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
E-MAIL ADDRESS	CSithole@Gledhow.co.za
TELEPHONE	032 437 4502
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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	LATITUDE			LONGITUDE		
	29°	22'	4.43"S	31°	17'	33.26"E
	29°	22'	8.02"S	31°	17'	36.31"E
	29°	22'	12.32"S	31°	17'	33.50"E
	29°	22'	10.82"S	31°	17'	29.26"E
	29°	22'	6.25"S	31°	17'	29.03"E
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Sludge from the sedimentation dam					
BENEFICIAL USE/S	Soil enhancer 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 sludge waste stream.</p> <p>Waste stream Sludge from the sedimentation dam is the waste stream relevant to this application for exclusion from the waste stream. It is to be as a soil enhancer on sugar cane farms.</p> <p>Brief description of the waste source Each process in the sugar production line produces liquid waste, through leaks, splashes and spills. Washing of the floors to clean up solids spill also generates effluent. The range of contaminants in the effluent would be mainly from among others, the:</p> <ul style="list-style-type: none"> • Milling of the cane which would result in high Biological Oxygen Demand waste (BOD) from the sugars, • Oils and greases from the drips and leaks from oil in The bearings and lubrication points of the machines,

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

	<ul style="list-style-type: none"> • Chemicals from the raw juice clarifiers dosage and other dosing points, • Ash quenching from the boilers, • Stormwater run-off, • Evaporator condensate, • Cooling ponds, • Floor washing, • Other. <p>All the effluent liquid and boiler liquid waste is pumped to the Ash dam, the sedimentation of this is the sludge.</p>	
PRODUCTION PROCESS FLOW CHART ATTACHED	YES Please refer to Annexure 1 for the process flow chart for the sludge waste stream.	NO
WASTE CLASSIFICATION	HAZARDOUS	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE	i. GN 636 S5: Current Prohibition/Restriction from Disposal: <ul style="list-style-type: none"> ○ (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: 73 %. ii. GN R636 S5: Future Prohibition/Restriction from Disposal: <ul style="list-style-type: none"> ○ (1)(r)(iv): >6% Total Organic Carbon (TOC). Hazardous waste with analytical value of: 18 %. (Prohibited from: Aug 2028) iii. GN R634: Overall Waste Disposal to Landfill: Type 0 Waste - very high risk. Prohibited as per GN 636 S5 given above for current restrictions. <ul style="list-style-type: none"> ○ Subject to waste treatment and re-assessment per GN R634, the prohibition or restriction may be excluded. iv. GN R635 S7, the waste is chemically assessed as a Type 3 - low risk.	
	v. Class C Landfill (GLB+)	

RISK ASSESSMENT WITHOUT MITIGATION

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
<ul style="list-style-type: none"> • Gledhow Sugar Company has on their SHEQ system: <ul style="list-style-type: none"> - The Illovo Code of Conduct and Business Ethics. - An overarching ILLOVO SHERQ policy. - Their own in house Waste Management Plan. - The Illovo 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. • The classification and the SSV 								

<p>comparison of the sludge gives very good indications of the hazards encountered by all affected stakeholders when working with the waste. It helps to identify areas which must be managed in order to minimise or eliminate risks.</p> <ul style="list-style-type: none"> The intention is to maximize the intended beneficial use of the waste, while minimising any unacceptable impacts to people, environment and economic harm. 								
<p>Sludge removal for farmer's use as a soil enhancer on sugar cane farms.</p>	<ul style="list-style-type: none"> Storage over time and running out of dam storage space, if demand is low. Windblown dust if sludge is dry out completely. 	<p>Spillage: Environment:</p> <ul style="list-style-type: none"> Overflows into the environment and then into the natural watercourse. Surface and effluent water. 	<p>High</p>	<p>1</p>	<p>6</p>	<p>2</p>	<p>2</p>	<p>18</p>

	<ul style="list-style-type: none"> • Risk of falling into the sludge dam. 	<ul style="list-style-type: none"> • 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 sludge. • Health and Safety. <ul style="list-style-type: none"> ○ Risk of drowning of personel. ○ No signages for risks, dangers and correct PPE. 						
Access to sludge/sludge storage area.	Security and safety: <ul style="list-style-type: none"> • Unauthorised access to the sludge area. 	Health, safety, environment: Should the access: <ul style="list-style-type: none"> • not be monitored, 	Medium	1	6	2	2	18

	<ul style="list-style-type: none"> • Unauthorised removal of sludge. • Risk of accidents in the dam. 	<ul style="list-style-type: none"> • nor safety signs be clearly visible, the removal of sludge in an unauthorised and unmanaged way can lead to undesired consequences: <ul style="list-style-type: none"> • accidents, • spillages and • harm to people and the environment. 						
Process of transferring sludge to the receiving vehicles.	<p>Health, safety and environment.</p> <ul style="list-style-type: none"> • Spillage onto area outside of protection area. • Splash onto personnel not authorised to be at the location. • Harm to unauthorised persons in the area. • Dust from low moisture/dried sludge. 	<p>Health and safety</p> <ul style="list-style-type: none"> • People: driver of vehicles. <ul style="list-style-type: none"> ○ Unauthorised and uninducted personnel at risk during the transfer of the sludge by spillage onto them, onto their clothing. Risk to health. ○ They may be hurt by the vehicles. <p>Environment.</p> <ul style="list-style-type: none"> • If sludge storage is close to the 	Low	3	4	1	1	18

		<p>boundary fence there is a risk to the surrounding environment by the sludge run-off into the natural water courses.</p> <ul style="list-style-type: none"> Overfilling of the transporation vehicle resuting in spillages within the mill property resulting in possible run-off <p>Economics: The cost of unnecessary clean-up costs by spillages on site.</p>						
Transporting of sludge to the end users.	<p>Health, safety, environment</p> <ul style="list-style-type: none"> Spillage: <ul style="list-style-type: none"> Overfilling receiving vehicle trailer with sludge Road accidents which may result in spillages on the main and access roads. 	<p>Health, safety environment:</p> <p>Spillage:</p> <ul style="list-style-type: none"> spills onto people's clothing when walking on the roads, and splashed on with motor vehicles driving through 	Medium	3	5	2	2	27

	<ul style="list-style-type: none"> ○ Spillages of sludge which result in accidents. ○ Non – compliance to the ROAD TRAFFIC ACT (RTA): <ul style="list-style-type: none"> ▪ driving unsafe vehicle, ▪ Vehicle without correct placarding if load is hazardous. ○ Soil contamination. ○ Groundwater, stormwater and surface water contamination. ○ Affects the flora and local animals, domestic and wild as well as residents. 	<p>spilt materials. Nuisance.</p> <ul style="list-style-type: none"> • Unsightly sludge on the roads, pavements, grass, in residential areas. • Soil contamination. • Groundwater, stormwater and surface water contamination. • Affects the flora and local animals, domestic and wild as well as residents. <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. • If vehicle is not properly maintained, the safety and integrity of the vehicle is 						
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		<p>compromised further.</p> <p>Environmental and reputation:</p> <ul style="list-style-type: none"> • Damage to reputation as GSC is seen as the owner and source of the sludge • Spillage onto the road and the spreading into the surrounding environment by traffic, wind and rain. • Nuisance to the users of the road and local residents in the area, • Endangering the safety of the road users, causing slippery roads. • Nuisance to vehicles following the transportation vehicle by windblown sludge and spray onto vehicles. 						
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		<ul style="list-style-type: none"> • Pedestrians and cyclists affected by sludge splashing onto them. Causing a physical and health hazard to people and animals in the vicinity. • Sludge on the roads and walk ways may run-off into neighbouring properties and into natural water courses.. 						
Sludge off-loading onto farm designated area.	Spillage: <ul style="list-style-type: none"> • Outside of designated area. • Depending on the offloading procedure, the offloading vehicle may spill residual sludge when travelling to other places to do work. 	Environment: <ul style="list-style-type: none"> • Run-off, <ul style="list-style-type: none"> ○ Affecting natural water courses. ○ Into the surrounding area affecting flora and water. 	Low	4	1	1	1	7
Storage at end user facilities	Environment <ul style="list-style-type: none"> • Run off. 	Environment: <ul style="list-style-type: none"> • Run-off of any liquid. 	High	2	5	2	2	18

	<ul style="list-style-type: none"> • Windblown dust if sludge is allowed to dry. <p>Safety</p> <ul style="list-style-type: none"> • Unauthorised removal of material. • Sparks could cause the material to burn. • Natural biological processes causing heat buildup in the stored sludge body, this causing internal heat build-up and start smouldering possibly to set fire to surrounding sugar cane. 	<ul style="list-style-type: none"> • Dust of dried out sludge, contaminating surrounding area affecting the flora and natural water source. <p>Health and safety</p> <ul style="list-style-type: none"> • Unmanaged waste activity by unauthorised removal, • Affected health • Consequential environmental damage. • Smouldering endangers people and any animals that walk through the area and may fall into the caverns formed by the smouldering material. • Wind may stir up the flames and sparks cause fire in nearby sugarcane fields. 						
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<p>Sludge management during distribution onto the intended farm soil as fertilizer.</p>	<p>Health. Dust: There may be health impacts from working with the possibly dried sludge during the spreading of fertilizer operations.</p> <p>Environment:</p> <ul style="list-style-type: none"> 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 SSV1 and 2 values from the guidelines for contaminated soil require that the sludge is not used in a way that will impact natural water sources, neither near informal residential areas. 	<p>Health. Dust:</p> <ul style="list-style-type: none"> There may be health impacts on eyes and skin. If it has been allowed to dry out then respiratory system is affected. Appropriate PPE and management of the material not adhered to. Spreading of the sludge is delayed too long. <p>Environment:</p> <ul style="list-style-type: none"> Run-off: <ul style="list-style-type: none"> from the operations into the water during the spreading out onto the fields. rain run-off will affect the receiving environment if not managed correctly. 	<p>Medium</p>	<p>3</p>	<p>5</p>	<p>2</p>	<p>2</p>	<p>27</p>
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Repeat application onto the same fields.	Environment: The soils may have salinity and toxic component build up if the soils and application are not monitored	Environment: The soils 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"> • Sludge contaminating: <ul style="list-style-type: none"> ◦ litter, oils, grease, as well as other items if the storage sites are not managed correctly. ◦ wind blown waste enters the sludge storage/dam. 	Environment: <ul style="list-style-type: none"> • Contaminated sludge becomes unusable on the farm fields without treatment. • Sludge contaminated waste needs to be disposed of correctly. 	Low	1	2	2	2	6
Socio-Economic Risks: Positive spin offs at risk should sludge beneficiation not be possible.								
<ul style="list-style-type: none"> • Employment. • Utilization of a renewable resource. • Sludge redirected off landfill site. 	Employment from 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	Some members of the community also can provide opportunities for themselves by	Local economy. Particularly amongst the vulnerable community groups:	Positive					+

utilizing this mix as a fertilizer medium.	growing healthy vegetables to sell. The sludge is not sold.	youth and women. Opportunities for project based use of the resource.						
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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, 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

__28th of June 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 SLUDGE WASTE
STREAM**

**GLEDHOW SUGAR
COMPANY**

Attachment: 2: Schematic - Sugar production process flow chart showing sludge waste generation sources.

