



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:	
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
CONTACT PERSON	SHERQ Officer: Environment & Risk
NAME	Nicole Geoffrey
ADDRESS	1 Mill Road, Sezela, Pennington, Kwazulu-Natal. 4215
E-MAIL ADDRESS	NGeoffrey@illovo.co.za
TELEPHONE	General Mill Contact no: 039 975 8000 Tel: +2731 450 7821
CELL PHONE	+2778 496 9843

WASTE GENERATING FACILITY OR FACILITIES							
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	1 Mill Road, Sezela, Pennington, Kwazulu-Natal.						
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES	Pin Locations	LATITUDE			LONGITUDE		
	A	30°	24'	39.12"S	30°	40'	25.64"E
	B	30°	24'	40.43"S	30°	40'	25.57"E
	C	30°	24'	39.67"S	30°	40'	23.49"E
	D	30°	24'	39.01"S	30°	40'	23.74"E
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Sludge from Effluent Treatment Plant (ETP).						
BENEFICIAL USE/S	Soil enhancer/fertilizer for agricultural use.						

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE GENERATING PROCESS¹	<p>Refer to report for details.</p> <p>The ETP is a conventional activated sludge Plant (CAS). It accepts effluent that emanates from site plant:</p> <ul style="list-style-type: none"> • wash downs, • sewage - <ul style="list-style-type: none"> ○ The mill has been in agreement since 1999 with the local municipality to assist with the treatment of sewage from the village as they were unable to do so. An agreement with the mill and the municipality has since been standing. • storm water. <p>The raw effluent undergoes:</p> <ul style="list-style-type: none"> • physical screening to remove the bulk inflow solids. At this point there is a facility to remedy any contamination should this occur. • Further along there are 2 grit settling chambers to remove any remaining solids such as ash and sand. • The liquid is channelled into the pre-treatment Aerated tank , a biological reactor using micro-organisms to consume biodegradable organic components in the effluent water • The activated sludge mixed liquor suspended solids (MLSS) from the aerator pre-treatment tank is allowed to flow into the activated sludge tank. • The clarifier allows the activated sludge to settle out of the mixed liquor, • Clear treated effluent water (final effluent) is recovered from the top of the clarifier. • The final effluent is either discharged to the: <ul style="list-style-type: none"> ○ Maturation River, OR <ul style="list-style-type: none"> ○ directly to the final effluent pump station which will transfer it to one or more of its destinations: <ul style="list-style-type: none"> ◆ the Boilers for use in the scrubbers, or ◆ to sea. <p>The sludge from the underflow is recycled back to the head of the works. During the crushing season the excess sludge is wasted via the</p>

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

	<p>sludge recycle pumps (5%) to the volute where it is filtered in the de-waterer with the:</p> <ul style="list-style-type: none"> • recovered water draining into maturation pond and • filter cake <p>It is then conveyed by the screw pump into the trailer for dumping.</p>	
PRODUCTION PROCESS FLOW CHART ATTACHED	YES ✓	NO
WASTE CLASSIFICATION	HAZARDOUS ✓	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE	<p>i. GN 636 S5: Current Prohibition/Restriction from Disposal:</p> <ul style="list-style-type: none"> ○ (1)(c) : Flammable waste with a closed cup flashpoint <61 °C. Analytical value of: 60 - Flash°C. ○ (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: 60 %. <p>ii. GN R636 S5: Future Prohibition/Restriction from Disposal:</p> <ul style="list-style-type: none"> ○ (1)(r)(iv): >6% Total Organic Carbon (TOC). Hazardous waste with analytical value of: 74%. (Prohibited from: Aug 2028) <p>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.</p> <ul style="list-style-type: none"> ○ Subject to waste treatment and re-assessment per GN R634, the prohibition or restriction may be excluded. <p>iv. GN R635 S7, the waste is chemically assessed as a Type 3 waste, (60% moisture content as-received analysis), which is low risk.</p> <p>v. Class C Landfill (GLB⁺).</p> <p>vi. GHS Hazard: Physical: H227 Cat 3: Flammable liquid,</p>	

RISK ASSESSMENT WITHOUT MITIGATION

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	Impact	ASSESSMENT OF RISK			SIGNIFICANCE	
				Probability	Magnitude	Duration		Scale
<ul style="list-style-type: none"> • Illovo Sugar Sezela Mill & Downstream Production Plant (ISSM) has on their SHEQ system: - 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. 			Positive					+

<ul style="list-style-type: none"> • The classification and the SSV 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. • The intention is to maximize the intended beneficial use of the waste, while minimising any unacceptable impacts to people, environment and cause economic harm. • It is noted that this sludge waste stream requires management and monitoring. 						
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<p>Dewatered sludge and platform preparation by ISSM</p>	<ul style="list-style-type: none"> Storage of the sludge producing 4 tons per day. Current rate of removal per day would be planned to be all that which is generated per day. Unwanted trespassers into the property to remove stored waste. Spillage into outside sensitive areas. Hazard from heat and possible fire. 	<p>Environmental</p> <ul style="list-style-type: none"> Dust: sludge drying out, creating windblown dust. Dust affecting the environmentally sensitive areas around the mill. Rain run-off into environmentally sensitive areas around storage area. Spillage into environmentally sensitive areas. <p>Security and safety:</p> <ul style="list-style-type: none"> Possible fire risk from cigarettes. Accidents and damage by trespassers. Potential for fire from stored sludge. 	<p>Medium</p>	<p>5</p>	<p>6</p>	<p>2</p>	<p>2</p>	<p>2</p>	<p>50</p>
<p>Sludge removal on request</p>	<ul style="list-style-type: none"> Storage over time and running out of dam storage space, if demand is low. 	<p>Spillage:</p> <p>Environment:</p> <ul style="list-style-type: none"> Overflows into the environment. Possible ground water pollution. 	<p>High</p>	<p>1</p>	<p>6</p>	<p>2</p>	<p>2</p>	<p>2</p>	<p>18</p>

	<ul style="list-style-type: none"> • Windblown dust if sludge is dried out completely. 	<ul style="list-style-type: none"> • Surrounding environment impacted by spils. • Windblown dust: Health and safety <ul style="list-style-type: none"> ○ Local airborne nuisance dust. ○ Eye, skin and respiratory irritation. ○ Inhalation of the wind blown dust. • Health and Safety. <ul style="list-style-type: none"> ○ No signages for risks, dangers and correct PPE. 				
<p>Access to sludge/sludge storage area.</p>	<p>Security and safety:</p> <ul style="list-style-type: none"> • Unauthorised access to the sludge area. • Unauthorised unmanaged removal of sludge. • Risk of accidents in the dam. 	<p>Health, safety, environment:</p> <p>Should the access: not be monitored, nor safety signs be clearly visible, the removal of sludge in an unauthorised and unmanaged way can lead to undesired consequences:</p> <ul style="list-style-type: none"> • accidents, 	High	1	6	2 2 18

		<ul style="list-style-type: none"> • spillages and harm to people and the environment. 			
<p>Process of transferring sludge to the receiving vehicles.</p>	<p>Health, safety and environment.</p> <ul style="list-style-type: none"> • Spillage onto area outside of protection area. • Splash onto personnel and those not authorised to be at the location. • 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 boundary fence there is a risk to the surrounding environment by the sludge run-off into the natural water courses. 	<p>Low</p> <p>3</p> <p>4</p> <p>1</p>	<p>1</p>	<p>18</p>

<p>Transporting of sludge to farm.</p>	<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. ○ Spillages of sludge which result in accidents. ○ Non –compliance to the ROAD TRAFFIC ACT (RTA): 	<ul style="list-style-type: none"> ● Overfilling of the transportation vehicle resulting in spillages within the mill property resulting in possible run-off <p>Economics: The cost of unnecessary clean-up costs by spillages on or off-site.</p>	<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"> ▪ driving unsafe vehicle, ▪ Vehicle without correct placarding: load is hazardous as in case of emergency, personell require information how to deal with the sludge. ○ Soil contamination. ○ Groundwater, stormwater and surface water contamination. ○ Affects the flora and local animals, domestic and wild as well as residents. 	<p>surface water contamination.</p> <ul style="list-style-type: none"> • 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 compromised further. <p>Environmental and reputation:</p> <ul style="list-style-type: none"> • Damage to reputation as ISSM is seen as the owner and source of the sludge 				
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	<ul style="list-style-type: none"> • 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 dried sludge or spray from moist sludge onto vehicles. • Pedestrians and cyclists affected by sludge splashing onto them or by nuisance dust. Causing a physical and health hazard to
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	<p>people and animals in the vicinity.</p> <ul style="list-style-type: none"> • Sludge on the roads and walk ways may run-off into neighbouring properties and into natural water courses.. 								
<p>Sludge off-loading onto farm designated area.</p>	<p>Spillage:</p> <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. • No applications or storage near residential areas or near water. 	<p>Health</p> <p>If off-loaded near residential areas potential to cause harm by exposure to those unaware of the sludge nature.</p> <p>Environment:</p> <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. 	<p>High</p>	<p>4</p>	<p>1</p>	<p>1</p>	<p>1</p>	<p>7</p>	
<p>Storage at end user facilities</p>	<p>Environment</p> <ul style="list-style-type: none"> • Run off. 	<p>Environment:</p> <ul style="list-style-type: none"> • Run-off of any liquid. 	<p>High</p>	<p>2</p>	<p>5</p>	<p>2</p>	<p>2</p>	<p>18</p>	

	<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 build-up 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. • Smoldering endangers people and any animals that walk through the area and may fall into the caverns formed by the smoldering material. • Wind may stir up the flames and sparks cause fire in 				
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	<p>Health. Dust: There may be health impacts from working with the possibly dried sludge during the spreading of fertilizer operations. Wet sludge: splashing onto clothing and exposed areas of body.</p> <p>Environment:</p> <ul style="list-style-type: none"> • Correct rate of application adhered to prevent toxic salt build up in soils. • Any mixture run-off from the mixture spreading operations will affect the receiving environment if not managed correctly, especially near to natural water sources. 									
	<p>nearby sugarcane fields.</p> <p>Health. Dust:</p> <ul style="list-style-type: none"> • There may be health impacts through exposure on skin. • If it has been allowed to dry out then reparatory 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"> o from the operations into the water during the spreading out onto the fields. o rain run-off will affect the 									

	<ul style="list-style-type: none"> The SSV1 and 2 values from the guidelines for contaminated soils require that the sludge is not used in a way that will impact natural water sources, neither near residential or industrial areas. 	receiving environment if not managed correctly.							
Repeat application onto the same fields.	<p>Environment: The soils may have salinity and toxic component build up if the soils and application are not monitored</p>	<p>Environment: The soils viability to propagate the sugar cane crops will be affected if not monitored correctly</p>	Low	2	2	2	2	1	10
Secondary waste generation	<p>Environment:</p> <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. 	<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	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. 	<p>Employment from the local community for the operation as the resource is freely available.</p>	<p>Local economy. Particularly amongst the vulnerable community groups: youth and women.</p>	<p>Positive</p>					<p>+</p>
<p>Small business development and community based projects. Example growing vegetables utilizing this mix as a fertilizer mix with other materials.</p>	<p>Some members of the community also can provide opportunities for themselves by growing healthy vegetables to sell. The sludge is not sold.</p>	<p>Local economy. Particularly amongst the vulnerable community groups: youth and women. Opportunities for project based use of the resource.</p>	<p>Positive</p>					<p>+</p>

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, NICOLE GEOFFREY (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:

ILLOVO SUGAR (SOUTH AFRICA) (PTY) LTD

Name of Applicant:

SHERQ OFFICER

Designation

26 SEPTEMBER 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.