



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	Ekapa Minerals (Pty) Ltd
CONTACT PERSON	Ester van der Westhuizen-coetzer
NAME	Ester van der Westhuizen-coetzer
ADDRESS	1 Molyneaux Road, Beaconsfield, Kimberley
E-MAIL ADDRESS	Ester.vanderWesthuizen-Coetzer@ekapagroup.com
TELEPHONE	053 838 7274
CELL PHONE	0723350273

WASTE GENERATING FACILITY OR FACILITIES						
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	1 Molyneaux Road, Beaconsfield, Kimberley, Northern Cape 8315, South Africa					
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES	LATITUDE			LONGITUDE		
	Kimberlite Fine Tailings (CTP Paste Facility)					
	28°	47'	43.45"	24°	49'	41.23"
	28°	48'	7.39"	24°	48'	44.97"
	28°	47'	39.32"	24°	48'	16.95"
	28°	47'	26.92"	24°	48'	15.17"
	28°	46'	40.33"	24°	48'	49.52"
	28°	46'	58.52"	24°	50'	4.04"
	28°	47'	43.45"	24°	49'	41.23"
	Kimberlite Coarse Tailings (TMR29)					
	28°	45'	25.73"	24°	48'	28.04"
	28°	45'	7.43"	24°	48'	48.86"
	28°	45'	36.46"	24°	49'	19.80"
	28°	46'	0.09"	24°	48'	59.39"
	28°	45'	56.27"	24°	48'	40.07"
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Kimberlite Coarse Tailings and Kimberlite Fine Tailings					
BENEFICIAL USE/S	<ul style="list-style-type: none"> - Stormwater Berms (Kimberlite Coarse Tailings) and - Agricultural Mineral Stabilizing Agent (Kimberlite Fine Tailings) 					

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE GENERATING PROCESS ¹	<p>Diamond recovery at Ekapa has shifted from kimberlite mining to reprocessing of the old tailings.</p> <p>Substantial resources of unrecovered diamonds are present in the remnant tailings facilities and can now be recovered using present-day technology. The mining method employed at Ekapa includes dozing and loading or excavation and loading and hauling of tailings material from tailings mineral resources (TMR's) to the Combined Treatment Plant (CTP) for treatment.</p>

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

The CTP receives material (-400mm) from multiple sources via the ore receiving section. Two reception bins are provided with a third for exclusive handling of pulsator material (which is treated at low rates due to the high material density). An enhancement to the process flow sheet was the incorporation of the Ore Conditioning section that provides for removal of oversize material and vegetation. Material is passed through the scrubbing and de-grits sections where the clay is deagglomerated and the material sized as preparation for the dense media separation (DMS) process. Oversize material (+19mm) from the scrubbing section is passed to the High-Pressure Roll Crusher (HPRC) recycle section for size reduction and liberation of locked diamonds.

ROM material is fed through the Ore Receiving section tipping bins and screened for secondary crushing to -40mm. Oversized material (+150mm) is discarded. Undersized (-40mm) is fed through to the Scrubber section.

TMR material is conveyed to the plant from a central point close to the ODTP area and fed directly into the plant. This conveyor system incorporates 4 vibrating grizzly feeders at the feed end to remove oversize (+100mm) material. This material is stockpiled and if deemed of economic value, will be added to the ROM feed for crushing.

The DMS is divided into a fines and coarse section. The fines section treats material between 1.15mm (bottom cut-off) and 6mm, while the coarse DMS treats all +6mm material.

The fines DMS feed material is processed through 12 rotary pans (Either run as one module, or two individual modules) as a concentration process to reduce the feed throughput to the fines DMS. The product streams from the fines DMS report to the Final Recovery (Sink material) and the Coarse Residue Tailings section (Float material). The coarse DMS product streams report to the Final Recovery (sinks material) and the float material cut at 6mm. The +6mm material reports to the HPRC section for recycling with further liberation of potentially locked diamonds. The - 6mm material reports to the Coarse Residue Disposal (Coarse Tailings).

All fines effluent from the Degrit Section (-1.15mm) is discharged via the thickening section to the Fines Residue Disposal (FRD) site. The CTP utilises paste thickening technology that provides for low water consumption (<0.4 m³/ton).

PRODUCTION PROCESS FLOW CHART ATTACHED	YES ✓	NO
WASTE CLASSIFICATION	HAZARDOUS ✓	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE	Kimberlite Coarse Tailings - <ul style="list-style-type: none"> The Kimberlite Coarse Tailings contains mainly quartz, mica, plagioclase smectite, dolomite and calcite with major elements (>1%) being Si, Al, Fe, Ca, Mg, Na and K. 	

- As, Ba, Co, Cu, Mn, Ni, V exceed the TCTO limits as per National Norms and Standards for Landfill Disposal (GNR635).

Kimberlite Fine Tailings -

- Si, Al, Fe, Ca, Mg, Na and K exceed 1%.
- As, Ba and Cu exceed the TCTO limits as per National Norms and Standards for Landfill Disposal (GNR635).

RISK ASSESSMENT WITHOUT MITIGATION

Activity	Risk description	Environmental Receptors	Assessment of Risk					Significance
			Impact	Probability	Magnitude	Duration	Scale	
Placement of coarse residue tailings as berms around the opencast pits (Beneficial use – berms around opencast pit to prevent clean stormwater inflow into opencast pits)	Accidental spillage into the environment	Soil	Soil contamination	3	2	2	1	15
		Surface water	Material carried by run-off deposited in storm water channels and water body in the vicinity of the storage area	2	2	2	2	12
	Groundwater	Seepage of contaminated leachate into groundwater	2	2	3	1	12	
	Soil	Soil contamination	3	2	2	1	15	
	Surface water	Material carried by run-off deposited in storm water channels and water body in the vicinity of the storage area	2	2	2	2	12	
	Groundwater	Seepage into groundwater and contamination	2	2	3	1	12	

Activity	Risk description	Environmental Receptors	Assessment of Risk						Significance
			Impact	Probability	Magnitude	Duration	Scale		
	Windblown particles	Air	Localised dust generation and air pollution	3	3	2	1	18	
Loading of paste clay material onto trucks (Beneficial use – paste clay to be manufactured into soil stabiliser)	Windblown particles	Air	Localised dust generation and air pollution	3	3	2	1	18	
Transportation (Beneficial use – paste clay to be manufactured into soil stabiliser)	Accidental spillage into the environment	Air	Localised dust generation and air pollution	3	3	2	1	18	
		Soil	Soil contamination	3	2	2	1	15	
Manufacturing of soil stabiliser (Beneficial use –	Windblown particles	Surface water	Dust carried by run-off deposited in storm water channels and water bodies in the vicinity of the storage area	2	2	2	2	12	
		Groundwater	Seepage into groundwater and contamination	2	2	3	1	12	
		Air	Localised dust generation and air pollution	3	2	2	2	18	

Activity	Risk description	Environmental Receptors	Assessment of Risk						Significance
			Impact	Probability	Magnitude	Duration	Scale		
paste clay to be manufactured into soil stabiliser)	Dust generation due to beneficiation process	Air	Localised dust generation and air pollution	3	2	2	2	2	18
		Soil	Soil contamination	3	2	2	2	2	18
			Material carried by deposited in storm water channels and water body in the vicinity of the storage area	2	2	2	2	2	12
	Seepage due to beneficial use	Surface water	Seepage into groundwater and contamination	2	2	3	1	12	
		Groundwater							

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:

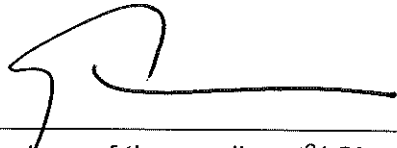
Significance (S) = (Magnitude + Duration + Scale) x Probability

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, HOWARD MARSDEN (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:

H. MARSDEN

Name of Applicant:

GENERAL MANAGER

Designation

16/8/23

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.

The basic overview of the mining method used by Ekapa Minerals includes the following:

The mining method employed in Ekapa Minerals includes dozing and loading or excavation and loading and hauling of Tailings Mineral Residue (“TMRs”) to the Combined Treatment Plant (“CTP”) for treatment.

Ekapa currently produces two types of mine residue, namely **Coarse Residue Deposits (“CRD”)** (tailings) and **Fine Residue Deposits (“FRD”)** (slimes/paste).

The main difference between the coarse and fine tailings is the particle size of the fines material that is smaller than 0.8 mm in diameter.

Processing Method

All TMRs and underground material (ROM from the Ekapa Resource operation) are treated at the CTP.

The CTP comprises the following sections:

1. Ore Receiving – the introduction of material from the various sources;
2. Scrubbing – disagglomeration of clay and primary sizing for the reconcentration sections;
3. Degrit – removal of grits (-1.15 mm) for thickening;
4. Rotary pan section – concentration of Fines DMS feed material;
5. Dense Media Separation (“DMS”) – concentration of Final Recovery feed material;
6. Final Recovery/Sorthouse – final X-Ray processing of concentrates to extract diamonds;
7. Thickening and tailings disposal – disposal of fines and coarse residue;
8. Recrush – crushing of oversize material and DMS float material; and
9. Services – power, water, utilities.

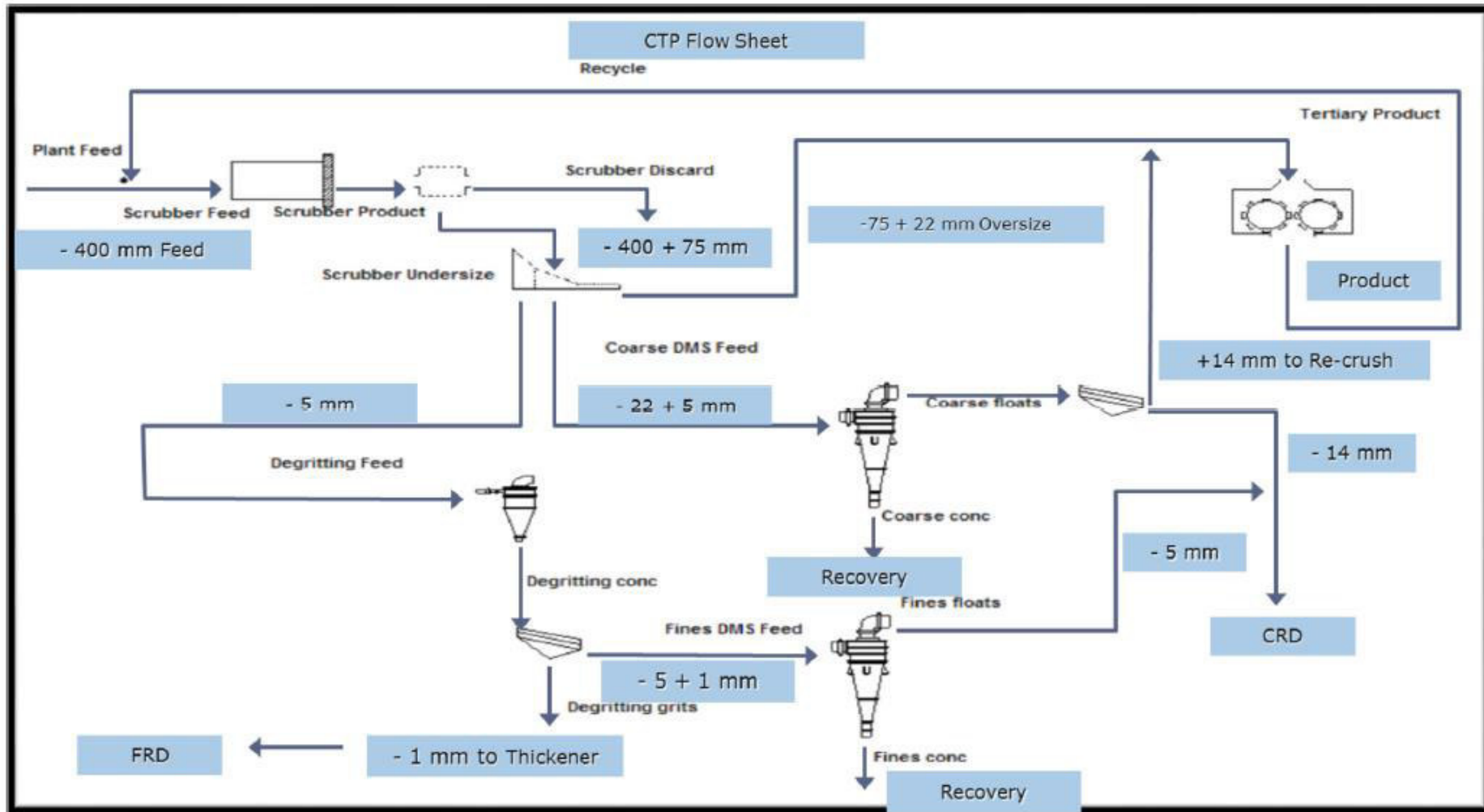


Figure 3: Process Flow illustration of the CTP