



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**

File Reference Number:
NEAS Reference Number:
Date Received:

(For official use only)

12/9/11

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	Transnet Freight Rail
CONTACT PERSON	Mr. Ndivhuwo Netshilaphala
NAME	Mr. Ndivhuwo Netshilaphala
ADDRESS	Transnet Freight Rail 21 Wellington Road Parktown Johannesburg
E-MAIL ADDRESS	Ndivhuwo.netshilaphala@transnet.net
TELEPHONE	011 584 0528
CELL PHONE	0718563667

WASTE GENERATING FACILITY OR FACILITIES	
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	The ballast spoils are currently stockpiled along the railway network across the four TFR main corridors of Central, Containers, North and Iron Ore. Specifically, there are +/-550 stockpiles along the railway lines between Saldanha – Sishen, Nelspruit area, Ermelo – Richards Bay and Johannesburg – Durban.
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES	LATITUDE
	LONGITUDE
	The detailed locations (area, coordinates, quantities) of the ballast stockpiles were verified during collection of the ballast samples used for the waste classification (the list is attached for ease of reference and also included in the Motivational Report as Annexure A: Location of Ballast Waste Stockpiles).
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Railway Ballast Spoils / Waste.
BENEFICIAL USE/S	<p>Transnet Freight Rail sought to apply for the following Beneficial Uses for its Ballast Spoils / Waste:</p> <ul style="list-style-type: none"> • Stabilisation of Embankments including Retention Structures; • Aggregate Material during Construction and Maintenance of Access and or Service Roads; • Water Drainage and Filtration Systems; • Use in the Lower Grade required Railway Lines and Marshalling Yards; • Substructure Material in Building Foundations; and • Fill Material in the Rehabilitation of Quarries and Borrow Pits.

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE GENERATING PROCESS¹	<p>Life Cycle of a Railway Ballast which eventually result in the ballast spoils is summed up in the following 8 step process:</p> <p>S1: Mining Activities at the Quarry S2: Sifting and Sizing of Ballast in line with TFR specification. S3: Testing Ballast Physical Properties at TFR Laboratory. S4: Load and Transport Ballast to TFR. S5: Off-load Ballast at Designated Sections Planned for Maintenance. S6: Lay ballast on Rail Tracks. S7: Conduct Routine Screening to Pick Up Faults, Slags caused by Ballast. S8: Replace & Stockpile Spoilt Ballast Along the Railway Lines.</p> <p>Detailed Process Description: During operations, ballast often gets crushed further on the railway tracks due to constant movement of trains. As ballast stones move, they rub against each other causing friction which crushes them further, reducing them in size until they no longer provide support and drainage function that they are required to provide. During its service life, railway ballast degrades. Individual grains are abraded, asperities may break off, and assembly loses performance as finer material created progressively fouls the assembly. The causes of this are repeated cyclic loading from passing trains and major damage caused to ballast by tamping operations to restore track geometry. Eventually, ballast bed requires complete replacement, and recovered trackbed material is disposed of as waste.</p> <p>Significant volumes of ballast waste are generated on an annually, during railway track maintenance. The maintenance of the railway track involves the process of ballast screening, which is the removal of impurities (i.e., crushed ballast stones) from the railway lines to maintain the required ballast stone aggregate sizes. TFR replaces on average between 1400m³ - 1600m³ per km of new ballast annually. The Ballast Process Flow has been attached to the Application Form and also included in the Motivational Report, Chapter 1, Figure 2.</p>
PRODUCTION PROCESS FLOW CHART ATTACHED: Attached in the Application Form and also included in the Motivational Report in Chapter One, Figure 2.	YES
WASTE CLASSIFICATION: Ballast samples were subjected to Laboratory Tests and classified as Type 3 (General). MSDS is attached in the Application Form and also detailed Waste Classification included in Motivational Report as Chapter 4 and MSDS as Annexure I.	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE:	The Ballast Spoils are classified as Type 3 waste and therefore not hazardous.

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

RISK ASSESSMENT WITHOUT MITIGATION (RISK ASSESSMENT REPORT)

ACTIVITY	RISK DESCRIPTION	ENVIRONMENTAL RECEPTORS	ASSESSMENT OF RISK					SIGNIFICANCE
			Impact	Probability	Magnitude	Duration	Scale	
Locate Ballast Stockpiles	Unable to locate ballast stockpiles	-	Time & other resources such as fuel	2	2	1	1	8-Low
Road Access	Unable to access stockpiles due to muddy, waterlogged and undrivable damaged service roads	-	Damaged Vehicles	4	6	2	1	36-Moderate
Loading	Snake bites during ballast disturbance and loading	Health & Safety	Serious Injuries and fatalities	4	8	2	1	36-Moderate
Locate /Availability of Stockpiles	Theft of existing ballast stockpiles	-	Time and other resource such as fuel	4	6	2	1	36-Moderate
Public Access	Uncontrolled movement in the Rail Reserve	Health & Safety	Serious Injuries & Fatalities	4	6	5	1	48-Moderate
Public Access	Increased theft of other railway infrastructure	-	Train Accidents or Derailments	3	6	3	2	33-Moderate
Transportation	Inability to safely transport ballast from rail reserve to earmarked use and or storage site	Health	Road Accidents	3	6	2	2	33-Moderate
Loading	Generation of dust	Air Health-Respiratory	Deterioration of local Air quality Potential Respiratory Irritation	3	6	1	1	24-Low
Locals Infigthing	Public Instability and or Infigthing for the resource	-	Serious Injuries & Fatalities	3	6	2	1	30-Moderate

Transportation	Potential to generate dust in transit	Environmental - Air - Health - Roads and Other - Road Users	Potential Irritation and Local Air Quality	Respiratory and Local Air	3	4	1	2	21-Low
Transportation	Excess ballast falling-off en route	Environmental - Air - Health - Roads and Other - Road Users	Damaged assets (windows and tyres)	Respiratory	3	6	1	2	27-Low
Off-loading	Generation of excessive dust	Air Health -Respiratory and Local Air Quality	Potential Irritation and Local Air Quality	Respiratory	3	6	1	1	24-Low
Storage of Ballast Stones	Use of ballast stones during public riots.	-	Damaged assets and serious injuries	properties,	3	6	2	1	27-Low
Accountability	Absence of and or lack of discipline in completing the Ballast Log Register	-	Non-compliance with Legal Prescript	Legal	2	8	2	4	28-Low *

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, **Ndivhuwo Netshilaphala** (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:

Transnet Freight Rail

Name of Applicant:

Senior Manager

Designation

18 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.