



**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	Sibanye-Stillwater Limited
CONTACT PERSON	Hennie Pretorius
NAME	Hennie Pretorius
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TELEPHONE	057 733 8674
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WASTE GENERATING FACILITY OR FACILITIES						
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	Ezulweni Uranium Plant at Westonaria Gauteng Province. Portion 13 of the Farm Waterpan 292 IQ					
GPS CO-ORDINATES AT CORNERS OF WASTE GENERATING FACILITY OR FACILITIES	LATITUDE			LONGITUDE		
	Southern Corner	26°21'34.2"S	South		27°42'50.35"E	East
	South-Western Corner	26°21'32.88"S	South		27°42'47.79"E	East
	Northern Corner	26°21'27.88"S	South		27°42'51.10"E	East
	North-Eastern Corner	26°21'29.16"S	South		27°42'53.45"E	East
WASTE STREAM OR PORTION OF A WASTE STREAM TO BE EXCLUDED FROM THE DEFINITION OF WASTE	Coarse Boiler Ash					
BENEFICIAL USE/S	Brick Making Block Making					

WASTE GENERATING PROCESS	
DETAILED DESCRIPTION OF WASTE	Coal fired boilers were used to generate steam for energy in the processing of Uranium. Coal ash is generated as a waste product from this process. Ash is manually removed from the ash tray and stored in concrete bunkers. This process no longer takes place and as a result this is legacy waste.

GENERATING PROCESS¹		
PRODUCTION PROCESS FLOW CHART ATTACHED	YES (Appendix A) X	NO
WASTE CLASSIFICATION	HAZARDOUS X	GENERAL
IF HAZARDOUS LIST THE HAZARDS OF THE WASTE	Coal ash generated from the combustion of bituminous coal comprises principally of aluminum oxide (Al ₂ O ₃), calcium oxide (CaO) and silicon dioxide (SiO ₂). The fact that ash is classified as hazardous as a result of these components and the impact these could have on the health of humans. Hazards include inhalation of the dust (causing lung irritation, damage or potentially cancer from silicates) or contact with eyes and skin (irritation). Ash, when exposed to natural elements, and when mono-stored, is unlikely to leach into the natural environment (distilled leach). Leaching will only occur in highly acidic environments, where the pH is below a pH of 5. In addition, the pH of ash is alkaline often reporting over a pH of 7.5.	

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

RISK ASSESSMENT WITHOUT MITIGATION

Activity	Risk Description	Environmental Receptors	Impact	Assessment of Risk			Significance
				Probability	Magnitude	Duration	
				Scale			
Management of ash from loading to transport offloading and management on User's site	Generation of dust impacting on the health of staff/employees/ unauthorised persons in handling ash	Human Health	Human health could be compromised. Lung damage and potential cancer from silicates	2	10	5	32 - Moderate With mitigation 14 - Low
				3	6	3	30 - Moderate With mitigation 10 - Low
Loading of ash for transportation	Generation of dust	Air	Air Quality degeneration	5	2	1	20 - Low With mitigation 6 - Low
Transportation of ash	Spillages, dust, compliance of vehicles transporting loads and driver behavior	Air	Air Quality degeneration by dust	2	2	1	8 - Low With mitigation 3 - Low
		Land/Soil	Potential contamination of soil as a result of spillage. The alkaline nature of the ash should limit the potential for leaching.	2	2	2	10 - Low With mitigation 4 - Low
Off-loading of ash	Generation of dust	Water	Potential contamination of water as a result of spillage. The alkaline nature of the ash should limit the potential for leaching and solubility of heavy metals. This might not be a localized impact as runoff into nearby watercourses could transport the contamination further	2	2	2	12 - Low With mitigation 5 - Low
		Air	Air Quality degeneration	5	2	1	20 - Low With mitigation 6 - Low
		Land/Soil	Potential contamination of soil as a result of spillage or the off-loading onto unprotected soils. The alkaline nature of the ash	3	2	2	15 - Low With mitigation 8 - Low

Activity	Risk Description	Environmental Receptors	Impact	Probability	Assessment of Risk			Significance
					Magnitude	Duration	Scale	
Storage of Ash	Generation of dust, and potential contamination of water/soil	Water	Potential contamination of water as a result of spillage or the off-loading onto unprotected soils.	2	2	2	2	12 - Low With mitigation 6 - Low
				3	2	2	1	15 - Low With mitigation 4 - Low
		Land/Soil	Potential contamination of soil as a result of improper storage, poor containment and lack of stormwater management.	3	2	2	1	15 - Low With mitigation 5 - Low
		Water	Potential contamination of water as a result of improper storage, poor containment and lack of stormwater management.	3	2	2	2	18 - Low With mitigation 6 - Low
		Air, Land/Soil, Water and Human Health	Access to ash by unauthorized persons could result in impact on human health unnoticed and unauthorized use of ash resulting in dust and contamination.	2	6	3	1	20 - Low With mitigation 6 - Low
Handling of ash and manufacturing	Generation of dust	Air	Air Quality degeneration by dust through movement, transfer and mixing of the ash with other input products	5	2	1	1	20 - Low With Mitigation 8 - Low
		Air	Air Quality degeneration by dust	3	2	2	1	15 - Low With mitigation 6 - Low
Disposal of ash waste not reused in process or remaining on site after closure	Illegal / improper disposal of waste	Land/Soil	Potential contamination of soil as a result of improper disposal and lack of stormwater management	3	4	2	1	21 - Low With mitigation 8- Low

		Water	Potential contamination of water as a result of improper disposal and lack of stormwater management	3	4	2	2	24 - Low With mitigation 8 - Low
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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:

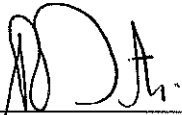
$$\text{Significance (S)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

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, Hennie Pretorius (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:

Hennie Pretorius
Name of Applicant:

Unit Manager Environment and Sustainable Development
Designation

19 April 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.

Boilers at Ezulweni Gold Plant Westonaria Gauteng

Legend
* Ezulweni Plant Boilers



Ezulweni Plant Boilers

Google Earth
Image © 2020 Maxar Technologies
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200 ft

Boilers at Ezulweni Gold Plant Westonaria Gauteng

Legend
Ezulweni Plant Boilers



Google Earth
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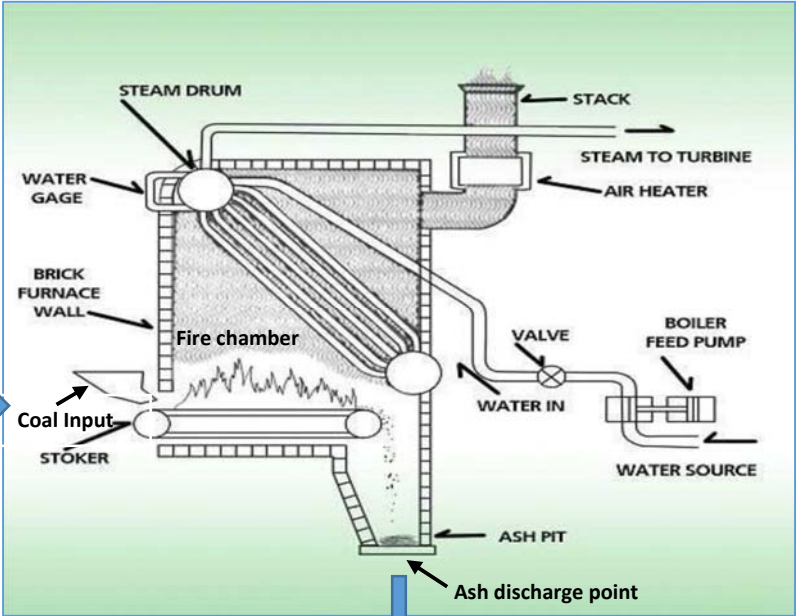
800 ft



Coal Steam Boiler and Ash Generation Process

Coal is stockpiled for continuous use

Coal input into the boiler via a conveyer belt system



Ash is removed via front end loader to ash storage bunkers

Ash is removed offsite