IMPLATS
Distinctly Platinum

Church of England Pensions Board:

Mining Investment Register of Tailings Facilities

JULY 2019

Tailings Facilities

RESPECT, CARE AND DELIVER

Impala

Disclosure Requirements	Impala Rustenburg
Tailings Facility Name and Identifier	Tailings Dam 3 & 4 (Combined)
Location	25°31'9.06"S; 27°14'16.53"E

Ownership Entity and shareholding	Impala Platinum Limited 100%
Status	Active
Date of Initial operation	**Dam 3:** 1978 started with construction of buttress 5A,5B and 5C. Dam 4 commenced in 1981
Is Dam currently operated or closed as per currently approved design criteria?	Yes, dam is operated as per approved design criteria
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	82.87 m
Current Maximum design height	144.6 m
Current Tailings Storage Impoundment volume	546 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	750 million m^3
Most recent independent expert review	See disclosure under "relevant information and supporting documentation"
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes
What is your hazard categorisation of this facility based on consequences of failure?	HIGH hazard facility
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	No
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Yes (Zone of Influence for worst case scenario) Zone of Influence assessed at design phase and reviewed during COP review in 2016. Breach study incorporated in End of Life study currently underway completion due FY2020; Minimal community resides in Zone of influence, emergency response being addressed with community.
Closure plan in place	Yes
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes
Any other relevant information and supporting documentation.	Daily inspections by the tailings dam operator. Weekly combined inspections by the Mine and tailings dam operator. Monthly combined inspections by the Mine, consultant, tailings dam operator and the private consultant. Annual drone inspections. Annual aerial inspections. Annual dam movement monitoring surveys. Annual drains inspection. Annual camera inspections of both penstock outfall pipelines. Annual inspection of the trough unit systems. Camera inspection of problematic drains as and when required. Five yearly dam safety inspections.
	Fraser Alexander is the daily operator together with the mine management, SRK being the Geotechnical consulting engineers and provide technical advice to the operation of the facility. Knight Piezold and Ken Lyell are also used.

IMPALA
Member of the Implats Group

Impala

Disclosure Requirements	Impala Rustenburg
Tailings Facility Name and Identifier	Tailings Dam 1 & 2 (Combined)
Location	25°31'12.32"S; 27°11'56.73"E

Ownership Entity and shareholding	Impala Platinum Limited 100%
Status	Inactive (no deposition), study underway to determine feasibility of reprocessing, EIA approval received
Date of Initial operation	1968
Is Dam currently operated or closed as per currently approved design criteria?	Yes, as per current reprocesssing operations plan and monitoring requirements
Raising Method (Upstream, Centreline, Downstream etc.)	No raising currently occuring. Original contruction was by upstream method
Current Height	26m
Current Maximum design height	26m
Current Tailings Storage Impoundment volume	33 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	33 million m^3 (less the volume to be remined, to be determined after feasibility study has been completed)
Most recent independent expert review	See disclosure under "relevant information and supporting documentation"
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes, after 1974 failure
What is your hazard categorisation of this facility based on consequences of failure?	MEDIUM Hazard facility
What guideline do you follow for the classification system?	SANS 10286:1998 Mine tailings disposal was largely unregulated in 1967. Rudimentary guidance was available on tailings storage construction in South Africa which was based on research, internal document by the Chamber of Mines issued in 1959
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	Failure occurred in 1974 and decommisioned shortly after. The facility has not since ever failed to be certified as fully stable
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External

Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Yes (Zone of Influence for worst case scenario) Zone of Influence assessed at design phase and reviewed during COP review in 2016. Breach study incorporated in End of Life study currently underway completion due FY2020; Minimal community resides in Zone of influence, emergency response being addressed with community.
Closure plan in place	
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes (Incorporated in combined (TD 1;2;3&4) Weather condition risk assessment and reaction plans)
Any other relevant information and supporting documentation.	COP requirement is the following (a) Professional Engineer to oversee risk monitoring (b) Professional Engineer to audit the tailings dam annually. Remaining activities being monitored as follows: Daily inspections by the tailings dam operator. Weekly combined inspections by the Mine and tailings dam operator. Monthly combined inspections by the Mine, consultant, tailings dam operator and the private consultant. Annual aerial inspections.
	Note: Mine tailings disposal was largely unregulated in 1967. Rudimentary guidance was available on tailings storage construction in South Africa which was based on research , internal document by the Chamber of Mines issued in 1959

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Marula

Disclosure Requirements	Marula
Tailings Facility Name and Identifier	TD 1
Location	24°30'39.94"S; 30°6'30.05"E

Ownership Entity and shareholding	Marula Platinum (Pty) Ltd (73% Implats, 9% Mmakau Mining, 9% Tubatse Platinum, 9% Marula Community Trust)
Status	Active
Date of Initial operation	2003
Is Dam currently operated or closed as per currently approved design criteria?	Yes, dam is operated as per approved design criteria
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	30m
Current Maximum design height	34m
Current Tailings Storage Impoundment volume	12 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	13.5 million m^3
Most recent independent expert review	See disclosure under "relevant information and supporting documentation"
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes
What is your hazard categorisation of this facility based on consequences of failure?	HIGH hazard facility
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	No
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Yes (Zone of influence for worst case scenario). The latest update to the zone of influence assessment in accordance with SANS 10286 was undertaken in 2018 for the final height of the facility at closure
Closure plan in place	Yes
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes

Any other relevant information and supporting documentation.	The current facility is nearing the end of the life. The planned final deposition on the facility is during 2020. A full Geotechnical stability assessment was completed with Piezocone tests to establish safe, final operational height and rate of rise. The facility is currently operated well within the design factor of safety. A specialist tailings operator has been contracted to operate the dam, with a professional geotechnical engineer appointed to provide external surveillance and auditing services, as per the SANS10286:1998 standard. A third party geotechnical engineer has been appointed in addition to ensure oversight of all parties. The mine has an approved Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine, which includes the tailings storage facility. Rehabilitation and closure assessments are performed annually and financial provision is made accordingly. Concurrent rehabilitation of the facility is done continually to facilitate closure. In terms of the mine's EMP, Water Use Licence and financial provision for rehabilitation and closure, a closure plan has been developed and closer to the end of life of the mine, a more detailed closure plan will have to be developed in consultation with the relevant authorities. Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires postclosure monitoring). As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:50 year flood events. Freeboard surveys are conducted twice per month in response to current elevated rates of rise, allowing for early detection and response to changes in the freeboard measurement.

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Marula

Disclosure Requirements	Marula
Tailings Facility Name and Identifier	TD 2
Location	24°31'1.07"S; 30°6'15.23"E

Ownership Entity and shareholding	Marula Platinum (Pty) Ltd (73% Implats, 9% Mmakau Mining, 9% Tubatse Platinum, 9% Marula Community Trust)
Status	Under Construction
Date of Initial operation	2020
Is Dam currently operated or closed as per currently approved design criteria?	N/A
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	N/A
Current Maximum design height	47m
Current Tailings Storage Impoundment volume	N/A
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	4.5 million m^3
Most recent independent expert review	See disclosure under "relevant information and supporting documentation"
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes
What is your hazard categorisation of this facility based on consequences of failure?	N/A
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	N/A
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Yes ((Zone of influence for worst case scenario). The design of the facility includes a Zone of influence assessment in accordance with SANS 10286 which covers the final height of TD1 and TD2 combined, as a worst case scenario.
Closure plan in place	Yes
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes

Any other relevant information and supporting documentation.	Construction is in response to the closure of the Marula TD1 facility The dam is not operational at the moment. But a full detailed design is in place and approved. The design aligns to the latest legislation and international best practices. A specialist tailings operator has been contracted to operate the dam, with a professional geotechnical engineer appointed to provide external surveillance and auditing services, as per the SANS10286:1998 standard. A third party geotechnical engineer has been appointed in addition to ensure oversight of all parties. The mine has an approved Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine, which includes the tailings storage facility. Rehabilitation and closure assessments are performed annually and financial provision is made accordingly. In terms of the mine's EMP, Water Use Licence and financial provision for rehabilitation and closure, a closure plan has been developed and closer to the end of life of the mine, a more detailed closure plan will have to be developed in consultation with the relevant authorities. Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires postclosure monitoring). As part of the annual external audit by the professional engineer, freeboard analysis specifically includes consideration of Probable Maximum Precipitation events.

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Two Rivers

Disclosure Requirements	Two Rivers
Tailings Facility Name and Identifier	Two Rivers Tailings facility
Location	24°57'19.16"S; 30°6'21.22"E

Ownership Entity and shareholding	Two Rivers (Pty) Ltd (49% Implats/51% ARM)
Status	Active
Date of Initial operation	2006
Is Dam currently operated or closed as per currently approved design criteria?	Yes
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	
Current Maximum design height	50m
Current Tailings Storage Impoundment volume	3.9 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	~565 333 m^3 to 2021
Most recent independent expert review	See disclosure under "relevant information and supporting documentation"
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes
What is your hazard categorisation of this facility based on consequences of failure?	HIGH hazard facility
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	Yes, design was modified and corrected
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	No. The latest update to the zone of influence assessment in accordance with SANS 10286 was undertaken during the first quarter of 2019. Comprehensive dam break analysis will be commissioned during 2019.
Closure plan in place	Yes
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes
Any other relevant information and supporting documentation.	

Any other relevant information and supporting documentation.	Recovery of tailings planned. Structural stability audit conducted by the external professional engineer annually. The most recent audit was conducted during 2018. ARM is in the process of commissioning independent review of its tailings facilities. The old TSF enclosed within the newly constructed TSF. A specialist company has been appointed to operate the dam on behalf of the mine due to their specialist civil/ geotechnical engineering capacity and experience. In addition, an external professional engineer has been appointed to provide external TSF surveillance and auditing services. The mine has an approved Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine, which includes the tailings storage facility. Rehabilitation and closure assessments are performed annually and financial provision is made accordingly. In terms of the mine's EMP, Water Use Licence and financial provision for rehabilitation and closure, a closure plan has been developed and closer to the end of life of the mine, a more detailed closure plan will have to be developed in consultation with the relevant authorities. Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires postclosure monitoring). As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.

TWO RIVERS PLATINUM

Mimosa

Disclosure Requirements	Mimosa
Tailings Facility Name and Identifier	Mimosa Phase 3 Tailings facility
Location	20°19'06.6"S 29°49'54.5"E

Ownership Entity and shareholding	Mimosa Mining Company Limited 50/50 Sibanye/Implats
Status	Active
Date of Initial operation	2002
Is Dam currently operated or closed as per currently approved design criteria?	Yes
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	31m
Current Maximum design height	40m
Current Tailings Storage Impoundment volume	20 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	28.6 million m^3
Most recent independent expert review	The most recent audit was undertaken in October 2018 by SRK.
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes
What is your hazard categorisation of this facility based on consequences of failure?	High
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	No
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Yes. The zone of influence is mapped at dam height of 1064m and 1084m. All the mine infrastructure in the zone of influence is clearly marked.
Closure plan in place	Yes
Long term monitoring plan in place	Yes
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes

Any other relevant information and supporting documentation.	Annual audits are conducted by SRK Consulting South Africa. The last audit was done in October 2018. The tailings dam is operated by Frazer Alexandera on behalf of the mine . It is supervised by Stefanutti Stocks Mining Services who are the designers of the TSF. A 2018 Closure Plan for the entire Mine which covers Tailings Storage Facility is in place. The closure plan is reviewed every 3 years and a financial provision for the closure is set aside annually for that purpose. Long term monitoring plan to cater for after closure monitoring is provided for in the existing legislation and will be complied with. A more detailed rehabilitation and monitoring plan will be provided for in the Closure Plan towards end of life of the Mine A Climate Change risk assessment for the Mine was conducted in 2016. The process culminated in the development of a Climate Change Policy in 2017 to ensure adaptation and mitigation of the effects of Climate Change. An emergency response plan with severe weather Trigger Action Response Plan (TARP) such as flooding, cyclones, high winds, high temperatures was also developed

MIMOSA

Disclosure Requirements	Afplats
Tailings Facility Name and Identifier	
Location	

Ownership Entity and shareholding	Majority Implats
Status	Under study
Date of Initial operation	Later than 2025
Is Dam currently operated or closed as per currently approved design criteria?	N/A
Raising Method (Upstream, Centreline, Downstream etc.)	N/A
Current Height	N/A
Current Maximum design height	N/A
Current Tailings Storage Impoundment volume	N/A
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	N/A
Most recent independent expert review	N/A
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	N/A
What is your hazard categorisation of this facility based on consequences of failure?	N/A
What guideline do you follow for the classification system?	N/A
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	N/A
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	N/A
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	N/A
Closure plan in place	N/A
Long term monitoring plan in place	N/A
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	N/A
Any other relevant information and supporting documentation.	N/A

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Waterberg

Disclosure Requirements	Waterberg
Tailings Facility Name and Identifier	
Location	

Ownership Entity and shareholding	Waterberg JV 15% Implats
Status	In design phase and permitting
Date of Initial operation	~ 2025
Is Dam currently operated or closed as per currently approved design criteria?	N/A
Raising Method (Upstream, Centreline, Downstream etc.)	N/A
Current Height	N/A
Current Maximum design height	N/A
Current Tailings Storage Impoundment volume	N/A
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	N/A
Most recent independent expert review	N/A
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	N/A
What is your hazard categorisation of this facility based on consequences of failure?	N/A
What guideline do you follow for the classification system?	N/A
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	N/A
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	N/A
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	N/A
Closure plan in place	N/A
Long term monitoring plan in place	N/A
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	N/A

Any other relevant information and supporting documentation.	N/A

Zimplats

Disclosure Requirements	Zimplats
Tailings Facility Name and Identifier	Ngezi TSF
Location	18°36'06.8"S; 30°18'22.3"E

Ownership Entity and shareholding	Implats 87% shareholding
Status	Active with progressive rehabilitation
Date of Initial operation	2009
Is Dam currently operated or closed as per currently approved design criteria?	Yes
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	11m
Current Maximum design height	96m
Current Tailings Storage Impoundment volume	19.2 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	21.3 million m^3
Most recent independent expert review	Ken Lyell (2018)
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes consolidated in Code of practice and operating manual
What is your hazard categorisation of this facility based on consequences of failure?	Low risk
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	No. Factor of safety (FoS) above minimum requirement of 1.5
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Zone of Influence assessed at design. Breach study inundation scheduled in FY2020;
Closure plan in place	Yes, study was done by E-tek consulting.
Long term monitoring plan in place	Yes, part of closure plan
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes, impact of climate change was carried out. Simulation of recent cyclone Idai was done by SRK designers & finding was that the dam can handle safely the extreme rainfall (1879mm in 24hours). Probable Maximum Precipitation (PMP is 478mm)
Any other relevant information and supporting documentation.	Stability assessment is carried out annually by dam designers (SRK Consulting) and the factor of safety (FoS) is above best practice standard of 1.5 Fraser Alexander Zimbabwe (FAZ), a specialist company has been appointed to operate the dam on behalf of the mine due to their specialist civil/ geotechnical engineering capacity and experience. In addition, the dam designers SRK Consulting with professional geotechnical/civil engineers are contracted to provide external TSF surveillance and auditing services every four months. The zone of influence assessment in accordance with SANS 10286 was undertaken during design. Comprehensive dam breach & inundation study will be commissioned during FY2020. The mine has an approved COP & Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine, which includes the tailings storage facility. Closure plan assessment was carried out by independent consultant E-Tek consulting.

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Zimplats

Disclosure Requirements	Zimplats
Tailings Facility Name and Identifier	SMC TSF
Location	18° 0' 36"; 30° 4' 34"

Ownership Entity and shareholding	Implats 87% shareholding
Status	Active with progressive rehabilitation
Date of Initial operation	1996
Is Dam currently operated or closed as per currently approved design criteria?	Yes
Raising Method (Upstream, Centreline, Downstream etc.)	Upstream
Current Height	32m
Current Maximum design height	43m
Current Tailings Storage Impoundment volume	23.7 million m^3
Planned Tailings Storage Impoundment volume in 5 Years (at January 2024)	24.6 m^3
Most recent independent expert review	Ken Lyell (2018)
Do you have full and complete relevant engineering records including design, construction, operation, maintenance and or closure?	Yes consolidated in Code of practice and operating manual
What is your hazard categorisation of this facility based on consequences of failure?	Medium risk
What guideline do you follow for the classification system?	SANS 10286:1998
Has the facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by same or different firm)?	No. Factor of safety (FoS) at 1.84 above minimum requirement of 1.5
Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
Has a formal analysis of downstream impact on communities, ecosystems and critical infrastructure in the event of a catastrophic failure been undertaken to reflect final conditions? If so, when did this assessment take place?	Zone of Influence assessed at design phase. Breach study inundation scheduled in FY2020; Zone of influence resides community and lobbying for relocation of the families progressing with the Government of Zimbabwe.
Closure plan in place	Yes, study was done by E-tek consulting.
Long term monitoring plan in place	Yes part of closure plan
Have you or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of Climate change e.g over the next two years?	Yes, impact of climate changes was carried out. Simulation of recent cyclone Idai was done by SRK designers & finding was that the dam can handle safely the extreme rainfall (1710mm) . Probable Maximum Precipitation (PMP is 400mm)
Any other relevant information and supporting documentation.	Stability assessment is carried out annually by dam designers (SRK Consulting) and the factor of safety (FoS) are above best practice standard of 1.5. Fraser Alexander Zimbabwe (FAZ), a specialist company has been appointed to operate the dam on behalf of the mine due to their specialist civil/ geotechnical engineering capacity and experience. In addition, the dam designers SRK Consulting with professional geotechnical/civil engineers are contracted to provide external TSF surveillance and auditing services every four months. The zone of influence assessment in accordance with SANS 10286 was undertaken during design. Comprehensive dam breach & inundation study will be commissioned during FY2020. The mine has an approved COP & Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine, which includes the tailings storage facility. Closure plan assessment was carried out by independent consultant E-Tek consulting.

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