SUMMARY OF TAILINGS STORAGE FACILITIES



ARM has compiled this disclosure which contains detailed information of each of its Tailings Storage Facilities (TSFs) in response to a request from a coalition of investors who are committed to working with the mining sector to ensure that verifiable best practice standards are developed, implemented and maintained.

We are committed to ensuring the stability of our TSFs and a professional engineer is appointed to perform this specialised function for each of our TSFs. The most recent structural stability reports confirm the TSFs at ARM's managed operations as stable. In line with global best practice, independent external review of the TSFs is being implemented to enhance our TSF management systems. This review of the operations, management and structural stability of the TSFs will be completed in the next 12 months. In addition, dam break analysis of our TSFs has been commissioned to ensure a comprehensive understanding of the potential impact on stakeholders including communities, the environment and infrastructure. This will inform enhanced emergency response planning.

Mike Schmidt CEO



OVERVIEW OF TAILINGS MANAGEMENT SYSTEM

Operational level: At each operation managed by ARM*, an internal competent person (in most cases the manager of the process plant) is appointed as the responsible manager (the Manager) in terms of the Mine Health and Safety Act (MHSA), to oversee the operation of each tailings storage facility (TSF). Legislative requirements are assessed and incorporated into the TSF management system. Each operation has submitted and implemented the requisite mandatory Code of Practice (COP) on the operation of mine residue facilities according to the guidelines of the South African Department of Mineral Resources (DMR). Internal and external reviews take place. Operating manuals and procedures have been developed and are aligned with the COPs. A professional civil/geotechnical engineer (the Engineer) is appointed at each operation to conduct annual structural stability audits and guarterly sureveillance monitoring of the TSFs. A specialist TSF operating company

(the Operator) has been appointed at all mines (with the exception of Beeshoek Mine) to operate the TSF in close cooperation with the Manager and audited by the Engineer on a quarterly basis. Routine daily, weekly and monthly inspections are performed both by the operating company and the operation.

Corporate level: A multi-disciplinary internal team conducts an annual review of management controls at ARM's operational Tailings Storage Facilities (TSFs). The scope of the review includes management controls and governance systems in place to ensure that TSFs are legally compliant and that each risk profile is understood and managed; and during 2018 also included a review of alignment with the Position Statement on Tailings Management, published by the International Council on Mining and Metals (ICMM), of which ARM is a member. In addition, a review of tailings management at each TSF, is conducted annually by the risk engineer from the International Mining Industry Underwriters (IMIU) during the annual risk survey. Detailed comments and

recommendations relevant to TSFs are added to each operational risk profile and progress is tracked on a quarterly basis.

RECENT ACTIONS TAKEN TO ENHANCE TAILINGS MANAGEMENT

During the first quarter of 2019, all operations commissioned revisions of: legal compliance; risk assessment; zones of influence (in the event of failure at final capacity); and appropriate tailings specific emergency response plans. To track progress in this regard, the CEO and divisional Chief Executives hosted a tailings workshop where each operation presented progress on the above. Further to this, focus is currently on (i) completing dam break analysis for each TSF; (ii) revision of emergency response planning and TSF specific emergency response procedures, as well as detailed plans for stakeholder engagement processes as appropriate; (iii) Implementing a process of independent external review of ARM's TSFs; and (iv) As a member of the ICMM supporting the "Mining with Principles" brand, ARM will also participate and implement all ICMM initiatives regarding TSFs.

* With the exception of the coal operations which are managed and reported on by Glencore.



NCHWANING II EXISTING TAILINGS STORAGE FACILITY

	I. Name of Managing Company	II. Shareholders	III. Co	untry	Γ	V. Name of Operation/Mine
	Assmang Pty Ltd	African Rainbow Minerals Ltd &	South	Africa	В	Black Rock Mine
		Assore Ltd				
1.	"Tailings Storage Facility" Name/Identifier	Nchwaning II existing Tailings Storage Facility	20.	Any other relevant inforr and supporting docume	nation ntation.	Q11: Structural stability audit conducted by the external professional engineer
2.	Location	27°08'17.92"S and 22°52'15.74"E		Please state if you have	omitted	annually. The most recent audit was
3.	Ownership	Assmang Pty Ltd		any other exposure to ta	ilings nt	conducted during October 2018.
4.	Status	Active		ventures you may have."	inc.	independent review of its tailings
5.	Date of initial operation	2007		, ,		facilities.
6.	Is the Dam currently operated or closed as per currently approved design?	Yes			Q16: A specialist company has been appointed to operate the dam on behalf	
7.	Raising method (Upstream, Centreline, Downstream etc.)	Upstream - spigot				of the mine due to their specialist civil/ geotechnical engineering capacity and
8.	Current Maximum Height (m)	10 m				experience. In addition, an external
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	1 000 000 m ³				to provide external TSF surveillance and auditing services.
10.	Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	1 240 000 m ³			Q17: The latest update to the zone of influence assessment in accordance with SANS 10286 was undertaken during the first quarter of 2019. Comprehensive	
11.	Most recent Independent Expert Review	Refer to Q20 for comment			dam break analysis will be commissioned during 2019. Q18: 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	
12.	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes				
13.	What is your hazard categorisation of this facility, based on consequence of failure?	High				
14.	What guideline do you follow for the classification system?	SANS 10286: 1998				financial provision is made accordingly.
15.	Has this 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 the same or a different firm).	No		Licence and financial provision for rehabilitation and closure, a closure plar 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		
16.	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External			integral part of the process (e.g. the existing Water Use Licence contains post- closure monitoring requirements). Q19: As part of the annual external audit by the professional engineer, freehoard	
17.	Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No				analysis includes consideration of 1:100 year flood events.
18.	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes				
19.	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				

ARM	SUMMARY	OF TAILINGS	STORAGE	FACILITIES
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NCHWANING II NEW TAILINGS STORAGE FACILITY

	I. Name of Managing Company	II. Shareholders	III. Country	IV. Name of Operation/Mine
	Assmang Pty Ltd	African Rainbow Minerals Ltd & Assore Ltd	South Africa	Black Rock Mine
1.	"Tailings Storage Facility" Name/Identifier	Nchwaning II New Tailings Storage Facility	20. Any other relevant information and supporting documentation.	Q11: This facility is currently in the process of commissioning and a structural stability audit will be conducted by the external professional engineer
2.	Location	27°08'29.82"S and 22°52'15.74"E	Please state if you have omitted	
3.	Ownership	Assmang Pty Ltd	any other exposure to tailings	
4.	Status	Active	facilities through any joint ventures you may have."	commissioning independent review of its
5.	Date of initial operation	Mar-19		tailings facilities. Q16: A specialist company has been appointed to operate the dam on behalf of the mine due to their operations will
6.	Is the Dam currently operated or closed as per currently approved design?	Yes		
7.	Raising method (Upstream, Centreline, Downstream etc.)	Upstream - spigot		geotechnical engineering capacity and
8.	Current Maximum Height (m)	0 m (commissioned in March 2019)		professional engineer has been appointed
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	10 m³		to provide external TSF surveillance and auditing services.
10	Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	1 200 000 m³		 Q17: 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. Q18: 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, 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 post closure monitoring). Q19: As part of the annual external audit
11	. Most recent Independent Expert Review	Refer to Q20 for comment		
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes		
13	. What is your hazard categorisation of this facility, based on consequence of failure?	High		
14	. What guideline do you follow for the classification system?	SANS 10286: 1998		
15	Has this 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 the same or a different firm).	No		
16	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for	External		
17	 Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place? 	No		by the professional engineering service, freeboard analysis includes consideration of 1:100 year flood events.
18	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes		
19	. 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		

GLORIA TAILINGS STORAGE FACILITY

l	I. Name of Managing Company	II. Shareholders	III. C	ountry	IV	/. Name of Operation/Mine
	Assmang Pty Ltd	African Rainbow Minerals Ltd & Assore Ltd	Sout	h Africa	B	lack Rock Mine
		ASSOIC EM				
			_		_	
1.	"Tailings Storage Facility" Name/Identifier	Gloria Tailings Storage Facility	20	Any other relevant information and supporting documentation.		Q11: Structural stability audit conducted by the external professional engineer
2.	Location	27°10'33.60"S and 22°54'26.38"E		Please state if you have omitted		annually. The most recent audit was
3.	Ownership	Assmang Pty Ltd		any other exposure to tailings		conducted during Uctober 2018, but
4.	Status	Active		ventures you may have."		directs the design but not the operation)
5.	Date of initial operation	2002		, ,		ARM is in the process of commissioning
6.	Is the Dam currently operated or closed as per currently approved design?	Yes			independent review of its tailings facilities.	
7.	Raising method (Upstream, Centreline, Downstream etc.)	Upstream - day wall and paddocks				Q12: Historical designs are not available, but a continuation report has been
8.	Current Maximum Height (m)	3 m				
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	200 000 m ³				u16: A specialist company has been appointed to operate the dam on behalf of the mine due to their specialist civil/
10	Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	245 000 m ³			geotechnical engineering capacity and experience. In addition, an external professional engineer has been appointed to provide external TSF surveillance and	
11	. Most recent Independent Expert Review	Refer to Q20 for comment				auditing services. Q17: The latest update to the zone of
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	No			influence assessment in accordance with SANS 10286 was undertaken during the first quarter of 2019. Comprehensive dam break analysis will be commissioned during 2019.	
13	What is your hazard categorisation of this facility, based on consequence of failure?	Medium			Q18: The mine has an approved Environmental Management Plan (EMP) which stigulates management	
14	What guideline do you follow for the classification system?	SANS 10286: 1998				(EMP) which stipulates management commitments during construction,
15	Has this 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 the same or a different firm).	No			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	
16	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External			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.	
17	Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No			integral part of the process (e.g. the existing Water Use Licence requires post- closure monitoring). Q19: As part of the annual external audit by the professional engineering service, freeboard analysis includes consideration of 1:100 year flood events.	
18	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes				
19	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				

SUMMARY OF TAILINGS STORAGE FACILITIES

as a result of climate change, e.g. over the next two years?

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BEESHOEK MINE TAILINGS STORAGE FACILITY

I. Name of Managing Company	II. Shareholders	III. Country	IV. Name of Operation/Mine
Assmang Pty Ltd	African Rainbow Minerals Ltd & Assore Ltd	South Africa	Beeshoek Mine
1. "Tailings Storage Facility" Name/Identifier	Beeshoek Mine Tailings Storage Facility	20. Any other relevant information and supporting documentation.	Q11: Structural stability audit conducted by the external professional engineer
2. Location	28°16'40.17"S and 23°00'42.83"E	Please state if you have omitted	annually. The most recent audit was conducted during 2018. The first
3. Ownership	Assmang Pty Ltd	any other exposure to tailings	
4. Status	Active	- ventures you may have."	scheduled for May 2019.
 Date of initial operation Is the Dam currently operated or closed as per currently approved design? 	Yes		Q16: An external professional engineer has been appointed to provide external TSF surveillance and auditing services.
7. Raising method (Upstream, Centreline, Downstream etc.)	Downstream		Q17: The latest update to the zone of influence assessment in accordance with
8. Current Maximum Height (m)	25 m		SANS 10286 was undertaken during the
 Current Tailings Storage Impoundment Volume (m³ as of March 2019) 	3 368 679 m³		first quarter of 2019. Comprehensive dam break analysis will be commissioned (if appropriate) during 2019.
 Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024) 	4 732 315 m³		Q18: 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.
11. Most recent Independent Expert Review	Refer to Q20 for comment		
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes	-	
13. What is your hazard categorisation of this facility, based on consequence of failure?	Low		
14. What guideline do you follow for the classification system?	SANS 10286: 1998		
15. Has this facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an	No	-	Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires post- closure monitoring).
independent engineer (even if later certified as stable by the same or a different firm).			Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100
16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External		year flood events.
17. Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No		
18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes		
19. Have you, or do you plan to assess your tailings facilities against the impact of more regular extreme weather events	Yes		

KHUMANI MINE PASTE DISPOSAL FACILITY

I. Na	me of Managing Company	II. Shareholders	III. Country	IV. Name of Operation/Mine
Assm	nang Pty Ltd	African Rainbow Minerals Ltd & Assore Ltd	South Africa	Khumani Mine
1. "Tai Nan	llings Storage Facility" ne/Identifier	Khumani Mine Paste Disposal Facility	19. Have you, or do you plan to assess your tailings facilities	
2. Loc	ation	27°50'23.44"S and 23°00'35.69"E	regular extreme weather events	Yes
3. Owr	nership	Assmang Pty Ltd	as a result of climate change,	
4. Stat	tus	Active	e.g. over the next two years?	
5. Date	e of initial operation	Mar-08	20. Any other relevant information	Q11: The most recent independent review
6. Is the or c	he Dam currently operated closed as per currently roved design?	Yes	and supporting documentation. Please state if you have omitted any other exposure to tailings	was conducted during July 2016. The most recent annual structural stability audit was conducted in October 2018
7. Rais Cen	sing method (Upstream, treline, Downstream etc.)	Compartment 1 and 2: Upstream construction. Compartment 3A: Centre-line construction (Impoundment). Compartment 3B (KM02): Back-filling of	facilities through any joint ventures you may have."	by the external professional engineer. ARM is in the process of commissioning future independent review of its tailings facilities. Q15: A sink hole occurred in
		mined-out open pit.		compartment 2 in 2012 and another in
8. Cur	rent Maximum Height (m)	22 m		compartment 3a during 2016 but did not
9. Curi Imp (m ³	rent Tailings Storage ooundment Volume as of March 2019)	13 200 000 m³		impact the stability of the dam. Q16: A specialist company has been
10. Plar Imp 5 ye for v	nned Tailings Storage boundment Volume in ears time (m ³ as planned January 2024)	20 700 000 m ³		the mine due to their in-house specialist civil/geotechnical engineering capacity and experience. In addition, an external professional engineer has been appointed to provide external TSF surveillance and auditing services.
11. Mos Exp	st recent Independent ert Review	Jul-16		
12. Do y relev inclu ope and	you have full and complete vant engineering records uding design, construction, ration, maintenance /or closure?	Yes		Q17: The latest update to the zone of influence assessment in accordance with SANS 10286 was undertaken during the first quarter of 2019. Comprehensive
13. What cate base	at is your hazard gorisation of this facility, ed on consequence of failure?	High		dam break analysis will be commissioned during 2019.
14. What for t	at guideline do you follow the classification system?	SANS 10286: 1998		Environmental Management Plan (EMP) which stipulates management
15. Has in it con or e con inde later sam	this facility, at any point is history, failed to be firmed or certified as stable, experienced notable stability cerns, as identified by an ependent engineer (even if r certified as stable by the ne or a different firm).	No		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
16. Do y eng of th exte this	you have internal/in house ineering specialist oversight his facility? Or do you have ernal engineering support for purpose?	External		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
17. Has the corr criti ever been fina	a formal analysis of downstream impact on munities, ecosystems and ical infrastructure in the nt of catastrophic failure n undertaken and to reflect I conditions? If so, when did	No		consultation with the relevant authorities. Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires post- closure monitoring). Q19: As part of the annual external audit by the professional engineer freeboard
18. Is the place it in	here a) a closure plan in the for this dam, and b) does clude long term monitoring?	(a)Yes (b) Yes		analysis includes consideration of 1:100 year flood events.

TWO RIVERS TAILINGS STORAGE FACILITY

I. Name of Managing Company Two Rivers Pty Ltd

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II. Shareholders African Rainbow Minerals Ltd & Impala Platinum Holdings Ltd III. Country South Africa IV. Name of Operation/Mine Two Rivers Platinum Mine

1.	"Tailings Storage Facility" Name/Identifier	Two Rivers Tailings Storage Facility
2.	Location	Y= 90226.00 X= 2761337.31
3.	Ownership	Two Rivers Pty Ltd
4.	Status	Active
5.	Date of initial operation	2006
6.	Is the Dam currently operated or closed as per currently approved design?	Yes
7.	Raising method (Upstream, Centreline, Downstream etc.)	Upstream
8.	Current Maximum Height (m)	50 m
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	21 200 000 m ³
10.	Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	25 000 000 m ³ (2021)
11.	Most recent Independent Expert Review	Refer to Q20 for comment
12.	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes
13.	What is your hazard categorisation of this facility, based on consequence of failure?	High
14.	What guideline do you follow for the classification system?	SANS 10286: 1998
15.	Has this 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 the same or a different firm).	Yes. Design was modified and corrected.
16.	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External
17.	Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No
18.	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes
19.	Have you, or do you plan to assess your tailings facilities	

Yes

against the impact of more

regular extreme weather events as a result of climate change, e.g. over the next two years? ventures you may have."

Q10: Recovery of tailings planned. Q11: 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.

Q15: The old TSF enclosed within the newly constructed TSF.

Q16: 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.

Q17: 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.

Q18: 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).

Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.

Any other relevant information and supporting documentation.
 Please state if you have omitted any other exposure to tailings facilities through any joint

CO-DISPOSAL TAILINGS STORAGE FACILITY

12	I. Name of Managing Company	II. Shareholders	III. Co	untry	IV. Name of Operation/Mine
	Nkomati Joint Venture	Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd	South	Africa	Nkomati Nickel Mine
1.	"Tailings Storage Facility" Name/Identifier	Co-disposal Tailings Storage Facility	20.	Any other relevant information and supporting documentation.	Q11: Structural stability audit conducted by the external professional engineer annually. The most recent audit was conducted during November 2018. ARM is in the process of commissioning
2.	Location	25°45'21.22"S 30°38'13,42"E		Please state if you have omitted	
3.	Ownership	Nkomati Joint Venture		facilities through any joint	
4.	Status	Active		ventures you may have."	independent review of its tailings
5.	Date of initial operation	2007			facilities.
6.	Is the Dam currently operated or closed as per currently approved design?	Yes			Q16: A specialist company has been appointed to operate the dam on behalf
7.	Raising method (Upstream, Centreline, Downstream etc.)	Impoundment dam			geotechnical engineering capacity and
8.	Current Maximum Height (m)	58 m			professional engineer has been appointed
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	21 333 333 m³			to provide external TSF surveillance and auditing services.
10.	Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	30 133 333 m³		Q17: The latest update to the zone of influence assessment in accordance wit SANS 10286 was undertaken during the first quarter of 2019. Comprehensive	
11.	. Most recent Independent Expert Review	Refer to Q20 for comment			dam break analysis will be commission during 2019.
12.	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes		Q18: The mine has an approved Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stances of the	
13.	What is your hazard categorisation of this facility, based on consequence of failure?	High			mine, which includes the tailings storage facility. Rehabilitation and closure assessments are performed annually and financial provision is made accordingly.
14.	What guideline do you follow for the classification system?	SANS 10286: 1999			
15.	Has this 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 the same or a different firm).	No		Licence and financial provision for rehabilitation and closure, a closure plan has been developed. Closer to the end of life of the mine, a more detailed closure plan will have to be developed consultation with the relevant authoritic Long-term monitoring remains an integral part of the process (e.g. the existing Water Use Licence requires po closure monitoring). Q19: As part of the annual external au by the professional engineer freeboard	
16.	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External			
17.	Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No			analysis includes consideration of 1:100 year flood events.
18.	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes			
19.	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			

MSB TAILINGS STORAGE FACILITY

I. Name of Managing Company II. Shareholders III. Country IV. Name of Operation/Mine Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd Nkomati Joint Venture South Africa Nkomati Nickel Mine 1. "Tailings Storage Facility" **20.** Any other relevant information Q4: The dam was closed, lined and MSB Tailings Storage Facility Name/Identifier and supporting documentation. rehabilitated as per the conditions of the 2. Location 25°43'56.71"S 30°36'19,67"E mine's Environmental Management Plan Please state if you have omitted any other exposure to tailings but has not received a closure certificate. 3. Ownership Nkomati Joint Venture facilities through any joint Q11: Structural stability audit conducted 4. Status Closed ventures you may have." by the external professional engineer 5. Date of initial operation 1997 annually. The most recent audit was 6. Is the Dam currently operated conducted during November 2018. ARM or closed as per currently Yes is in the process of commissioning approved design? independent review of its tailings 7. Raising method (Upstream, Upstream facilities. Centreline, Downstream etc.) Q16: A specialist company has been 8. Current Maximum Height (m) 19 m appointed to operate the dam on behalf 9. Current Tailings Storage of the mine due to their specialist civil/ 604 500 m³ Impoundment Volume (m³ as of March 2019) geotechnical engineering capacity and experience. In addition, an external 10. Planned Tailings Storage Impoundment Volume in professional engineer has been appointed 604 500 m³ to provide external TSF surveillance and 5 years time (m³ as planned for January 2024) auditing services. **11.** Most recent Independent Q17: The latest update to the zone of Refer to Q20 for comment Expert Review influence assessment in accordance with 12. Do you have full and complete SANS 10286 was undertaken during the relevant engineering records first guarter of 2019. Comprehensive including design, construction, Yes dam break analysis will be commissioned operation, maintenance during 2019. and/or closure? Q18: The mine has an approved 13. What is your hazard Environmental Management Plan categorisation of this facility, I ow (EMP) which stipulates management based on consequence of failure? commitments during construction, 14. What guideline do you follow SANS 10286: 2000 operation and closure stages of the for the classification system? mine, which includes the tailings 15. Has this facility, at any point storage facility. Rehabilitation and in its history, failed to be closure assessments are performed confirmed or certified as stable, annually and financial provision is or experienced notable stability No made accordingly. In terms of the concerns, as identified by an independent engineer (even if mine's EMP, Water Use Licence and later certified as stable by the financial provision for rehabilitation and same or a different firm). closure, a detailed closure plan was 16. Do you have internal/in house developed and implemented in 2016. engineering specialist oversight The rehabilitated tailings storage facility of this facility? Or do you have External is part of the external professional external engineering support for engineer's surveillance program. Longthis purpose? term monitoring remains an integral 17. Has a formal analysis of part of the process (e.g. the existing the downstream impact on Water Use Licence requires post-closure communities, ecosystems and monitorina) critical infrastructure in the No Q19: As part of the annual external audit event of catastrophic failure been undertaken and to reflect by the professional engineer, freeboard final conditions? If so, when did analysis includes consideration of 1:100 this assessment take place? year lood events. 18. Is there a) a closure plan in place for this dam, and b) does (a)Yes (b) Yes it include long term monitoring? 19. Have you, or do you plan to assess your tailings facilities against the impact of more Yes regular extreme weather events as a result of climate change, e.g. over the next two years?

ONVERWACHT TAILINGS STORAGE FACILITY

	Name of Managing Company	II Shareholders	III Country	IV Name of Operation/Mine
ľ	Nkomati Joint Venture	Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd	South Africa	Nkomati Nickel Mine
1.	"Tailings Storage Facility" Name/Identifier	Onverwacht Tailings Storage Facility	20. Any other relevant information and supporting documentation.	Q11: Structural stability audit conducted by the external professional engineer annually. The most recent audit was
2.	Location	25°49'56.45"S 30°38'39.07"E	Please state if you have omitted	
3.	Ownership	Nkomati Joint Venture	any other exposure to tailings	conducted during November 2018. ARM
4.	Status	Active	facilities through any joint	is in the process of commissioning
5.	Date of initial operation	2009	ventures you may have.	independent review of its tailings facilities. Q16: A specialist company has been appointed to operate the dam on behalf
6.	Is the Dam currently operated or closed as per currently approved design?	Yes		
7.	Raising method (Upstream, Centreline, Downstream etc.)	Upstream - deposition done by cycloning		of the mine due to their specialist civil/ geotechnical engineering capacity and
8.	Current Maximum Height (m)	65 m		experience. In addition, an external
9.	Current Tailings Storage Impoundment Volume (m ³ as of March 2019)	31 764 700 m ³		to provide external TSF surveillance and auditing services.
10	. Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	49 411 759 m³		Q17: The latest update to the zone of influence assessment in accordance with SANS 10286 was undertaken during the first quarter of 2019. Comprehensive
11	. Most recent Independent Expert Review	Refer to Q20 for comment		dam break analysis will be commissioned during 2019. Q18: 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
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes		
13.	What is your hazard categorisation of this facility, based on consequence of failure?	High		
14	. What guideline do you follow for the classification system?	SANS 10286: 2001		
15	. Has this 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 the same or a different firm).	No		Licence and financial provision for rehabilitation and closure, a closure plan has been developed. 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
16	Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	External		integral part of the process (e.g. the existing Water Use Licence requires post- closure monitoring). Q19: As part of the annual external audit by the professional engineer, freeboard
17	Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No		analysis includes consideration of 1:100 year flood events.
18	Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	(a)Yes (b) Yes		
19	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		

HIGH SULFIDE STORAGE FACILITY

I. Name of Managing Company Nkomati Joint Venture

the downstream impact on

event of catastrophic failure
been undertaken and to reflect
final conditions? If so, when did
this assessment take place?
18. Is there a) a closure plan in
place for this dam, and b) does

communities, ecosystems and critical infrastructure in the

it include long term monitoring? **19.** 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? II. Shareholders Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd III. Country South Africa IV. Name of Operation/Mine Nkomati Nickel Mine

"Tailings Storage Facility" 1. High Sulfide Storage Facility Name/Identifier 2. Location 25°43'51.20"S 30°36'9.40"E 3. Ownership Nkomati Joint Venture 4. Status Dormant 5. Date of initial operation 2009 6. Is the Dam currently operated or closed as per currently Yes approved design? 7. Raising method (Upstream, Impoundment dam Centreline, Downstream etc.) 8. Current Maximum Height (m) 15 m 9. Current Tailings Storage 270 000 m³ Impoundment Volume (m³ as of March 2019) 10. Planned Tailings Storage Impoundment Volume in 270 000 m³ 5 years time (m³ as planned for January 2024) **11.** Most recent Independent Refer to comment under Q 20 Expert Review 12. Do you have full and complete relevant engineering records including design, construction, Yes operation, maintenance and/or closure? 13. What is your hazard categorisation of this facility, Hiah based on consequence of failure? 14. What guideline do you follow SANS 10286: 1998 for the classification system? 15. Has this facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability No concerns, as identified by an independent engineer (even if later certified as stable by the same or a different firm). 16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have External external engineering support for this purpose? 17. Has a formal analysis of

No

Yes

(a)Yes (b) Yes

20. Any other relevant information and supporting documentation.Please state if you have omitted

any other exposure to tailings facilities through any joint ventures you may have." Q11: Structural stability audit conducted by the external professional engineer annually. The most recent audit was conducted during November 2018. ARM is in the process of commissioning independent review of its tailings facilities.

Q16: 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.

Q17: 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.

Q18: 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. 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).

Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.

MODIKWA TALINGS STORAGE FACILITY

I. Name of Managing Company	II. Shareholders	III. Country	IV. Name of Operation/Mine
Modikwa Platinum Joint Venture	Co-ownership between Rustenburg Platinum Mines Ltd and ARM Mining Consortium Ltd	South Africa	Modikwa Platinum Joint Venture
1. "Tailings Storage Facility" Name/Identifier	Modikwa Talings Storage Facility	20. Any other relevant information and supporting documentation.	Q15: Phase 1 of the buttress construction commenced in December 2011 and was
2. Location	-24.651158 S, 30.15190 E	Please state if you have omitted	completed in September 2012. Phase 2
3. Ownership	Modikwa Platinum Joint Venture	any other exposure to tailings	of the buttress construction commenced
4. Status	Active	facilities through any joint	in October 2015 and was completed in
5. Date of initial operation	2002	ventures you may have.	August 2017.
6. Is the Dam currently operated or closed as per currently approved design?	Yes		Q16: A specialist company has been appointed to operate the dam on behalf of the mine due to their specialist civil/
7. Raising method (Upstream, Centreline, Downstream etc.)	Upstream		geotechnical engineering capacity and experience. In addition, an external
8. Current Maximum Height (m)	42 m		professional engineer has been
 Current Tailings Storage Impoundment Volume (m³ as of March 2019) 	22 000 000 m ³		surveillance and auditing services. Q17: The latest update to the zone of
10. Planned Tailings Storage Impoundment Volume in 5 years time (m ³ as planned for January 2024)	28 000 000 m³		influence assessment in accordance wit SANS 10286 was undertaken during the first quarter of 2019. Comprehensive dam break analysis will be commission
11. Most recent Independent Expert Review	2016		during 2019. Q18: The mine has an approved
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes		Environmental Management Plan (EMP) which stipulates management commitments during construction, operation and closure stages of the mine which includes the tailings storage
13. What is your hazard categorisation of this facility, based on consequence of failure?	High		facility. Rehabilitation and closure assessments are performed annually an
14. What guideline do you follow for the classification system?	SANS 10286: 1998		In terms of the mine's EMP, Water Use
15. Has this facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability	Yes. A buttress was constructed to restore		rehabilitation and closure, a closure plan has been developed. Closer to the end of life of the mine, a more detailed

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 post-
closure monitoring).

Q19: Planned.

1.

2. 3. 4. 5. 6.

concerns, as identified by an

independent engineer (even if later certified as stable by the same or a different firm). 16. Do you have internal/in house

engineering specialist oversight of this facility? Or do you have

external engineering support for

event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place? **18.** Is there a) a closure plan in place for this dam, and b) does

it include long term monitoring? 19. 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?

this purpose? 17. Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the

stability.

External

No

Yes

(a)Yes (b) Yes