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 quarterly surveillance 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.
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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>I. Name of Managing Company</strong></td>
<td>Assmang Pty Ltd</td>
</tr>
<tr>
<td><strong>II. Shareholders</strong></td>
<td>African Rainbow Minerals Ltd &amp; Assore Ltd</td>
</tr>
<tr>
<td><strong>III. Country</strong></td>
<td>South Africa</td>
</tr>
<tr>
<td><strong>IV. Name of Operation/Mine</strong></td>
<td>Black Rock Mine</td>
</tr>
</tbody>
</table>

1. **“Tailings Storage Facility” Name/Identifier**
   - Nhawaning II existing Tailings Storage Facility

2. **Location**
   - 27°08’17.92”S and 22°52’15.74”E

3. **Ownership**
   - Assmang Pty Ltd

4. **Status**
   - Active

5. **Date of initial operation**
   - 2007

6. **Is the Dam currently operated or closed as per currently approved design?**
   - Yes

7. **Raising method (Upstream, Centreline, Downstream etc.)**
   - Upstream - spigot

8. **Current Maximum Height (m)**
   - 10 m

9. **Current Tailings Storage Impoundment Volume (m³ as of March 2019)**
   - 1,000,000 m³

10. **Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)**
    - 1,240,000 m³

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: 1988

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 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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?**
    - 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.

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Q11: Structural stability audit conducted by the external professional engineer annually. The most recent audit was conducted during October 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 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 contains post-closure monitoring requirements).

Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
1. **Name/Identifier**
   - Nchwaning II New Tailings Storage Facility

2. **Location**
   - 27°08'29.82"S and 22°52'15.74"E

3. **Ownership**
   - Assmang Pty Ltd

4. **Status**
   - Active

5. **Date of initial operation**
   - Mar-19

6. **Is the Dam currently operated or closed as per currently approved design?**
   - Yes

7. **Raising method (Upstream, Centreline, Downstream etc.)**
   - Upstream - spigot

8. **Current Maximum Height (m)**
   - 0 m (commissioned in March 2019)

9. **Current Tailings Storage Impoundment Volume (m³ as of March 2019)**
   - 10 m³

10. **Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)**
    - 1 200 000 m³

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 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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?**
    - Yes

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Q11: This facility is currently in the process of commissioning and a structural stability audit will be conducted by the external professional engineer annually. 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 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 by the professional engineering service, freeboard analysis includes consideration of 1:100 year flood events.
### GLORIA TAILINGS STORAGE FACILITY

<table>
<thead>
<tr>
<th>I. Name of Managing Company</th>
<th>II. Shareholders</th>
<th>III. Country</th>
<th>IV. Name of Operation/Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assmang Pty Ltd</td>
<td>African Rainbow Minerals Ltd &amp;</td>
<td>South Africa</td>
<td>Black Rock Mine</td>
</tr>
<tr>
<td></td>
<td>Assore Ltd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1. “Tailings Storage Facility” Name/Identifier</th>
<th>Gloria Tailings Storage Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Location</td>
<td>27°10'33.60&quot;S and 22°54'26.38&quot;E</td>
</tr>
<tr>
<td>3. Ownership</td>
<td>Assmang Pty Ltd</td>
</tr>
<tr>
<td>4. Status</td>
<td>Active</td>
</tr>
<tr>
<td>5. Date of initial operation</td>
<td>2002</td>
</tr>
<tr>
<td>6. Is the Dam currently operated or closed as per currently approved design?</td>
<td>Yes</td>
</tr>
<tr>
<td>7. Raising method (Upstream, Centreline, Downstream etc.)</td>
<td>Upstream - day wall and paddocks</td>
</tr>
<tr>
<td>8. Current Maximum Height (m)</td>
<td>3 m</td>
</tr>
<tr>
<td>9. Current Tailings Storage Impoundment Volume (m³ as of March 2019)</td>
<td>200 000 m³</td>
</tr>
<tr>
<td>10. Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)</td>
<td>245 000 m³</td>
</tr>
<tr>
<td>11. Most recent Independent Expert Review</td>
<td>Refer to Q20 for comment</td>
</tr>
<tr>
<td>12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?</td>
<td>No</td>
</tr>
<tr>
<td>13. What is your hazard categorisation of this facility, based on consequence of failure?</td>
<td>Medium</td>
</tr>
<tr>
<td>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).</td>
<td>No</td>
</tr>
<tr>
<td>16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?</td>
<td>External</td>
</tr>
<tr>
<td>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?</td>
<td>No</td>
</tr>
<tr>
<td>18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?</td>
<td>(a)Yes (b) Yes</td>
</tr>
<tr>
<td>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?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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 October 2018, but not deemed fully independent (engineer directs the design but not the operation). ARM is in the process of commissioning independent review of its tailings facilities.

Q12: Historical designs are not available, but a continuation report has been completed by the professional engineer.

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 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.
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<tbody>
<tr>
<td><strong>Table: Beeshoek Mine Tailings Storage Facility</strong></td>
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</tr>
<tr>
<td>I. Name of Managing Company</td>
<td>II. Shareholders</td>
<td>III. Country</td>
<td>IV. Name of Operation/Mine</td>
</tr>
<tr>
<td>Assmang Pty Ltd</td>
<td>African Rainbow Minerals Ltd &amp; Assore Ltd</td>
<td>South Africa</td>
<td>Beeshoek Mine</td>
</tr>
</tbody>
</table>

1. **“Tailings Storage Facility” Name/Identifier**
   - Beeshoek Mine Tailings Storage Facility

2. **Location**
   - 28°16'40.17"S and 23°00'42.83"E

3. **Ownership**
   - Assmang Pty Ltd

4. **Status**
   - Active

5. **Date of initial operation**
   - 2002

6. **Is the Dam currently operated or closed as per currently approved design?**
   - Yes

7. **Raising method (Upstream, Centreline, Downstream etc.)**
   - Downstream

8. **Current Maximum Height (m)**
   - 25 m

9. **Current Tailings Storage Impoundment Volume (m³ as of March 2019)**
   - 3 368 679 m³

10. **Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)**
    - 4 732 315 m³

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 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 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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?**
    - 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 2018. The first independent review of this TSF is scheduled for May 2019.

   Q16: 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 (if appropriate) 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 post-closure monitoring).

   Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
1. **Name/Identifier**
   - Khumani Mine Paste Disposal Facility

2. **Location**
   - 27°50'23.44"S and 23°00'35.69"E

3. **Ownership**
   - Assmang Pty Ltd

4. **Status**
   - Active

5. **Date of initial operation**
   - Mar-08

6. **Raising method (Upstream, Centreline, Downstream etc.)**
   - Compartment 1 and 2: Upstream construction.
   - Compartment 3A: Centre-line construction (Impoundment).

7. **Current Maximum Height (m)**
   - 22 m

8. **Current Tailings Storage Impoundment Volume (m³ as of March 2019)**
   - 13 200 000 m³

9. **Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)**
   - 20 700 000 m³

10. **Most recent Independent Expert Review**
    - Jul-16

11. **Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?**
    - Yes

12. **What is your hazard categorisation of this facility, based on consequence of failure?**
    - High

13. **What guideline do you follow for the classification system?**
    - SANS 10286: 1998

14. **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

15. **Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?**
    - External

16. **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

17. **Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?**
    - (a) Yes (b) Yes

18. **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

19. **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.**

20. **Any other relevant information and supporting documentation.**

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**Q11:** The most recent independent review was conducted during July 2016. The most recent annual structural stability audit was conducted in October 2018 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 compartment 2 in 2012 and another in compartment 3a during 2016 but did not impact the stability of the dam.

**Q16:** A specialist company has been appointed to operate the dam on behalf of 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.

**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 post-closure monitoring).

**Q19:** As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
## Summary of Tailings Storage Facilities

<table>
<thead>
<tr>
<th>I. Name of Managing Company</th>
<th>II. Shareholders</th>
<th>III. Country</th>
<th>IV. Name of Operation/Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Rivers Pty Ltd</td>
<td>African Rainbow Minerals Ltd &amp; Impala Platinum Holdings Ltd</td>
<td>South Africa</td>
<td>Two Rivers Platinum Mine</td>
</tr>
</tbody>
</table>

### 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 (m³ as of March 2019)
- 3,900,000 m³

### 10. Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)
- 565,333 m³ (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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?
- 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.
- 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 post-closure monitoring).
- Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
<table>
<thead>
<tr>
<th>I. Name of Managing Company</th>
<th>II. Shareholders</th>
<th>III. Country</th>
<th>IV. Name of Operation/Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkomati Joint Venture</td>
<td>Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd</td>
<td>South Africa</td>
<td>Nkomati Nickel Mine</td>
</tr>
</tbody>
</table>

1. "Tailings Storage Facility" Name/Identifier: Co-disposal Tailings Storage Facility
2. Location: 25°45'21.22"S 30°38'13.42"E
3. Ownership: Nkomati Joint Venture
4. Status: Active
5. Date of initial operation: 2007
6. Is the Dam currently operated or closed as per currently approved design? Yes
7. Raising method (Upstream, Centreline, Downstream etc.): Impoundment dam
8. Current Maximum Height (m): 58 m
9. Current Tailings Storage Impoundment Volume (m³ as of March 2019): 21 333 333 m³
10. Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024): 30 133 333 m³
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
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 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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years? 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 post-closure monitoring).

Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
<table>
<thead>
<tr>
<th>I. Name of Managing Company</th>
<th>II. Shareholders</th>
<th>III. Country</th>
<th>IV. Name of Operation/Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkomati Joint Venture</td>
<td>Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd</td>
<td>South Africa</td>
<td>Nkomati Nickel Mine</td>
</tr>
</tbody>
</table>

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.

Q4: The dam was closed, lined and rehabilitated as per the conditions of the mine’s Environmental Management Plan but has not received a closure certificate.

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 detailed closure plan was developed and implemented in 2016. The rehabilitated tailings storage facility is part of the external professional engineer’s surveillance program. 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 analysis includes consideration of 1:100 year flood events.
### Tailings Storage Facility: Onverwacht

<table>
<thead>
<tr>
<th>I. Name of Managing Company</th>
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<th>III. Country</th>
<th>IV. Name of Operation/Mine</th>
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<td>South Africa</td>
<td>Nkomati Nickel Mine</td>
</tr>
</tbody>
</table>

1. **Name/Identifier**
   - Tailings Storage Facility

2. **Location**
   - 25°49'56.45"S 30°38'39.07"E

3. **Ownership**
   - Nkomati Joint Venture

4. **Status**
   - Active

5. **Date of initial operation**
   - 2009

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

8. **Current Maximum Height (m)**
   - 65 m

9. **Current Tailings Storage Impoundment Volume (m³ as of March 2019)**
   - 31 764 700 m³

10. **Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)**
    - 49 411 759 m³

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 10286:2001

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

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 against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?**
    - 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 post-closure monitoring).
    - Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
<table>
<thead>
<tr>
<th></th>
<th>SUMMARY OF TAILINGS STORAGE FACILITIES</th>
<th>HIGH SULFIDE STORAGE FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Name of Managing Company</td>
<td>Nkomati Joint Venture</td>
<td></td>
</tr>
<tr>
<td>II. Shareholders</td>
<td>Partnership between African Rainbow Minerals Ltd and Norilsk Nickel Africa Pty Ltd</td>
<td></td>
</tr>
<tr>
<td>III. Country</td>
<td>South Africa</td>
<td></td>
</tr>
<tr>
<td>IV. Name of Operation/Mine</td>
<td>Nkomati Nickel Mine</td>
<td></td>
</tr>
<tr>
<td>1. “Tailings Storage Facility” Name/Identifier</td>
<td>High Sulfide Storage Facility</td>
<td></td>
</tr>
<tr>
<td>2. Location</td>
<td>25°43’51.20”S 30°36’9.40”E</td>
<td></td>
</tr>
<tr>
<td>3. Ownership</td>
<td>Nkomati Joint Venture</td>
<td></td>
</tr>
<tr>
<td>4. Status</td>
<td>Dormant</td>
<td></td>
</tr>
<tr>
<td>5. Date of initial operation</td>
<td>2009</td>
<td></td>
</tr>
<tr>
<td>6. Is the Dam currently operated or closed as per currently approved design?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>7. Raising method (Upstream, Centreline, Downstream etc.)</td>
<td>Impoundment dam</td>
<td></td>
</tr>
<tr>
<td>8. Current Maximum Height (m)</td>
<td>15 m</td>
<td></td>
</tr>
<tr>
<td>9. Current Tailings Storage Impoundment Volume (m³ as of March 2019)</td>
<td>270 000 m³</td>
<td></td>
</tr>
<tr>
<td>10. Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)</td>
<td>270 000 m³</td>
<td></td>
</tr>
<tr>
<td>11. Most recent Independent Expert Review</td>
<td>Refer to comment under Q 20</td>
<td></td>
</tr>
<tr>
<td>12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>13. What is your hazard categorisation of this facility, based on consequence of failure?</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>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).</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?</td>
<td>External</td>
<td></td>
</tr>
<tr>
<td>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?</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?</td>
<td>(a)Yes (b) Yes</td>
<td></td>
</tr>
<tr>
<td>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?</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

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 post-closure monitoring).

Q19: As part of the annual external audit by the professional engineer, freeboard analysis includes consideration of 1:100 year flood events.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>&quot;Tailings Storage Facility&quot; Name/Identifier</td>
<td>Modikwa Talings Storage Facility</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Location</td>
<td>-24.651158 S, 30.15190 E</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Ownership</td>
<td>Modikwa Platinum Joint Venture</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Status</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Date of initial operation</td>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Is the Dam currently operated or closed as per currently approved design?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Raising method (Upstream, Centreline, Downstream etc.)</td>
<td>Upstream</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Current Maximum Height (m)</td>
<td>42 m</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Current Tailings Storage Impoundment Volume (m³ as of March 2019)</td>
<td>22 000 000 m³</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Planned Tailings Storage Impoundment Volume in 5 years time (m³ as planned for January 2024)</td>
<td>28 000 000 m³</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>What is your hazard categorisation of this facility, based on consequence of failure?</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>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).</td>
<td>Yes. A buttress was constructed to restore stability.</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?</td>
<td>External</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>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?</td>
<td>No</td>
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<td>18.</td>
<td>Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?</td>
<td>(a) Yes (b) Yes</td>
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<td>19.</td>
<td>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?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>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.”</td>
<td>Q15: Phase 1 of the buttress construction commenced in December 2011 and was completed in September 2012. Phase 2 of the buttress construction commenced in October 2015 and was completed in August 2017. 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 contracted 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 post-closure monitoring). Q19: Planned.</td>
<td></td>
</tr>
</tbody>
</table>