



GOLD FIELDS

Management of Tailings Storage Facilities

June 2019





**Opening
remarks
by
Gold Fields
CEO
Nick Holland**

The failure of the tailings facility at the Córrego do Feijão iron ore mine in Brumadinho, Brazil, in January was a tragedy that left close to 300 people dead and impacted many families and their communities. Our hearts go out to those affected and we have offered our deepest condolences and support.

But we also recognise that, as miners, our responsibilities go beyond offering just words. We have to ensure that we manage our tailings facilities with the utmost care to avoid a repeat of the Brumadinho tragedy as well as other mine tailings dam failures before then.

In the wake of the tragedies, Gold Fields is pursuing two broad strategies to further strengthen the technical management and governance of the 34 tailings facilities at our operations and joint ventures.

At industry level, CEOs of the International Council on Mining & Metals (ICMM), including Gold Fields, have committed to creating a step change for the industry in the safety of tailings facilities. The ICMM, UN Environment and the UN Principles for Responsible Investment are developing a recognised international standard for member companies, based on best practices to ensure that tailings facility risks are managed appropriately, consistently, and transparently. An independent panel of experts is overseeing the work.

At company level, Gold Fields has aligned its tailings management practices to the ICMM position statements on water and tailings management.

All Gold Fields' TSFs, as well as associated pipeline and pumping infrastructure, are subject to an independent, external audit every three years – or more frequently where required by local

circumstances or regulations – as well as regular inspections and formal annual Engineer of Record reviews.

After the Brumadinho tragedy, Gold Fields' operations carried out additional safety inspections at our facilities and concluded that Gold Fields-managed TSFs were not at risk. To further improve operational safety of our TSFs, we are, where practical, evaluating the potential to move away from the construction of upstream facilities to centre-line or downstream designs, considering filtered and dry stacked tailings, as well as in-pit tailings disposal.

We will continue to review and, where applicable and practical, consider the adoption of leading practices in the design, construction, operation and closure (including post-closure) of tailings dams in the company. Gold Fields fully supports greater transparency in the mining sector and as such we are today providing a written response to a request from the Church of England Pensions Board and the Swedish Council on Ethics for the AP Funds to a number of listed mining companies.

At Gold Fields the safety and health of our workforce has always been management's top priority. The recent industry tragedies around the catastrophic failures of tailings facilities has highlighted once again that the safety of our surrounding communities is equally critical.

Sincerely

Nick Holland
CEO, Gold Fields Ltd

CHURCH OF ENGLAND PENSIONS BOARD / SWEDISH NATIONAL PENSION FUNDS COUNCIL ON ETHICS REQUEST FOR INFORMATION CONCERNING TAILINGS MANAGEMENT

PREAMBLE

a) Provide an overview of your tailings management system, and how you manage risk

The most significant waste materials produced by our operations are tailings, waste rock, chemical waste and hydrocarbon waste. By managing these wastes responsibly, we minimise the environmental and potential social impact, so as to maintain our licence to operate.

In total, as at 7 June 2019, our ten operations (including three joint venture sites) contain 34 tailings dams, of which 14 are active or are being rehabilitated and one will be commissioned imminently. With regards to active tailing storage facilities (TSFs), Gold Fields currently has two in-pit tailings dams operating at Agnew (Australia) and St Ives (Australia), five downstream/centreline tailings dams and seven upstream tailings dams. Gold Fields operations with active downstream/centreline tailings dams are Cerro Corona (Peru), Damang (Ghana) and Tarkwa (Ghana). Gold Fields has only three operations where upstream tailings are being used, being South Deep (South Africa), Tarkwa and Granny Smith (Australia). The factor of safety (FOS) of each existing upstream TSF is regularly reviewed, and when required, modification options (e.g. embankment buttressing) are considered to ensure Gold Fields' target minimum FOSs are at least sustained.

Maintaining our TSFs, which includes identifying, assessing and managing the risks associated with them (including operational, structural and environmental risks) is part of our ordinary course of business. That notwithstanding, Gold Fields, like many other mining companies faces inherent risks in our operation of TSFs. Most critically, tailings must be disposed of in an appropriate manner so as not to impact the safety of the workforce and communities or cause environmental damage. The use of TSFs exposes Gold Fields to certain risks, among them seepage of decanted tailings water or acid mine drainage and the failure of a dam at a tailings storage facility.

TSFs designed with upstream constructed embankments typically present greater risk, particularly where the facility is located in a high seasonal rainfall area and where the embankments are constructed using reclaimed tailings materials. The occurrence of a dam failure at one of Gold Fields' TSFs could also lead to the loss of human life and/or extensive property, environmental damage and result in significant financial exposure and the approach we take to prevent such a failure is described on the following pages.

Gold Fields' Group, regional and mine management regularly assess the risks facing the business. The assessments of the risks and their mitigating actions are a critical internal management tool, which seek to mitigate the identified risks. Risk mitigations are included in the annual Group Performance Scorecard and cascaded down to the performance scorecard of management employees at regional and operational levels. The formal risk review process starts during management's annual strategic planning sessions where strategic risks and macro-trends are analysed in developing Gold Fields' risk registers and mitigating actions. These are updated quarterly, and presented to the Board's Risk Sub-Committee twice a year for verification.

Gold Fields maintains measures to manage its TSFs' safety, including compliance with the International Council on Mining & Metals' (ICMM) Tailings Governance Position Statement and undertakes routine reviews by independent international consulting companies.

All of our operations have tailings management plans in place, including closure and post-closure management plans. Gold Fields has implemented a multi-layered approach to TSF management that includes:

1. TSFs are designed by external, experienced and qualified engineers
2. TSF designs are required to be peer-reviewed
3. Construction is supervised or monitored by the design engineer and includes appropriate quality assurance/control
4. "As-built" facilities are required to be signed-off by the design engineer
5. TSFs are managed by assigned personnel
6. TSFs have an engineer of record appointed who undertakes regular reviews of the TSFs

7. Independent audits are undertaken at least on a triannual basis (more often in some cases)
8. Gold Fields' corporate technical services team review and check TSF management processes employed at the operations
9. Key variances identified by TSF reviews are noted and communicated to the Gold Fields Executive Committee and the Board of Directors quarterly
10. Gold Fields has developed a formal Group TSF Management Guideline, and full compliance to this is expected
11. Risk is identified formally through risk assessments undertaken at various stages of the design and operational process
12. A strategic risk register is maintained at corporate level, which includes risks linked to the TSFs

Gold Fields is moving away from installing new upstream TSFs with the most recent new TSFs constructed being in-pit TSFs (Agnew and St Ives), and downstream TSFs (Gruyere (Australia), Tarkwa and Damang).

As two of our sites - South Deep and Granny Smith - are located in relatively dry regions, limited amounts of water need to be stored on the facilities, significantly reducing the risk of saturation of the dams. Tarkwa's upstream tailings dams in Ghana have been constructed from imported fill materials, and are designed assuming worst-case scenario conditions, to ensure the embankments remain stable throughout both the wet and dry seasons, as well as for the life of the facility.

All Gold Fields' TSFs, as well as associated pipeline and pumping infrastructure, are subject to an independent, external audit every three years – or more frequently where required by local circumstances or regulations – as well as regular inspections and formal annual or quarterly Engineer of Record reviews.

Risk tables and heat maps have been published in the Integrated Annual Report (IAR) for the last nine years. See <https://www.goldfields.com/reports/annual-report-2018/risks-and-materiality.php> for more details. Information about how Gold Fields discloses risks associated with its TSFs may be found in its most recent Form 20-F filing with the US Securities and Exchange Commission. See <https://www.goldfields.com/form-20-f.php> for more details.

b) Confirm whether your approach to tailings management has changed or will change in light of the recent tailings disasters at Brumadinho, Mariana, Mt Polley and others. Have you, for example, reviewed all tailings storage facilities with upstream dam construction, and taken steps necessary to protect local communities and the environment e.g. buttressing, evacuation?

After the Samarco accident, ICMM members developed a Tailings Position Statement in 2016 and approved a tailings aspirational goals roadmap in late 2018. Following a company-wide programme of internal and external reviews of the Gold Fields TSFs undertaken in 2017, a number of improvement areas were recommended, including:

- Seismicity design considerations
- Appointment of an Engineer of Record for each TSF
- Dam break assessments
- Update of emergency response plans
- TSF seepage management and control

Gold Fields' Group Tailings Management Guidelines are aligned to the ICMM Tailings Position Statement. The guidelines were strengthened during 2017 with the inclusion of additional performance guidance and minimum assessment criteria.

Subsequent to the Brumadinho tragedy, the ICMM agreed to establish an independent panel of experts to develop an international standard for tailings facilities for its member companies. The panel has since been established.

In addition to closing out the above identified gaps during 2018, Gold Fields also embarked on a programme to further improve operational safety of its TSFs, including moving away from the construction of upstream facilities to centre-line or downstream designs, consideration of filtered and dry stacked tailings, as well as in-pit tailings disposal.

These are in line with the main areas of work under the ICMM's aspirational goals: improving critical controls and reducing tailings water content.

The following actions have been implemented or are currently in process at our operations:

- The recent construction of a new downstream TSF for the Damang Reinvestment project
- The adoption of filtered, dry stacked and lined tailings storage for the planned Salares Norte (Chile) mine
- The increased use of in-pit tailings disposal in Australia (new TSFs for Agnew and St Ives installed are in-pit TSFs)
- Increased use of tailings for underground backfill at the South Deep, Granny Smith and St Ives Invincible mines
- Improved governance over seepage control at TSFs through the installation of liners. All new TSFs at Tarkwa, Damang and Gruyere are fully or partially lined

In February 2019, the Gold Fields Board also requested strengthened governance of the Group's TSFs through, among others, quarterly TSF update reports, continuous environmental monitoring, satellite monitoring scans, and increased external and independent verification. These programmes and initiatives are currently being investigated by management with a view to rapid implementation.

Gold Fields is also working with Lepanto Mining, its majority partner in the Far Southeast project in the Philippines, on enhancing risk mitigating measures for the TSF used by Lepanto for tailings disposal from its nearby gold mine. Gold Fields and Lepanto have commissioned external consultants to undertake detailed hydrological, seismic and geotechnical reviews and make recommendations on strengthening the TSF. The TSF is located in a region with high seismic activity and frequent typhoons.

Our technical teams are also working with Asanko Gold to further strengthen risk assessment and governance of the lined and downstream designed TSF at the Asanko gold mine joint venture in Ghana. Asanko Gold has management control of the operation.

During 2018, two new downstream TSFs were commissioned at our West African operations: the FETSF at the Damang mine and TSF 5 at Tarkwa.

c) General note

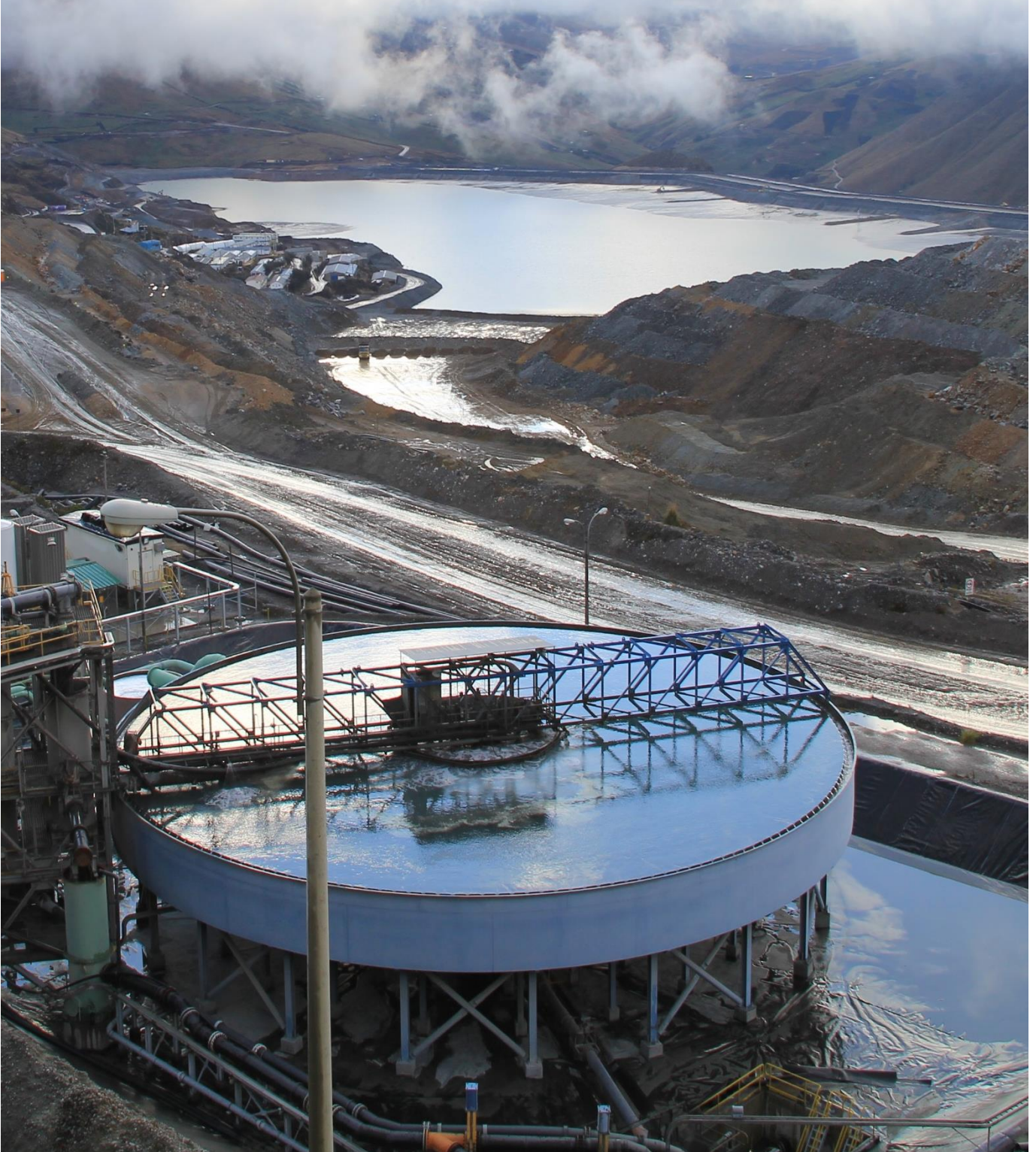
ICMM agreed a position statement on the materiality of member submissions, which it relayed to the Church of England and the Swedish Council of Ethics. Gold Fields has applied the same interpretation to our response.

To fulfil our understanding of the spirit of the questionnaire (i.e. any potential latent life-safety concerns at an existing facility that have been previously flagged but remain unaddressed), the following interpretation has been used:

- Not being certified/confirmed as stable is assumed to be where a noted deficiency is deemed sufficiently significant to trigger a catastrophic failure – the term deficiency is used in that context herein;
- For operating facilities, this refers to any identified sufficiently significant deficiency for the current life/stage. For a previous life/stage, any deficiency that was not addressed as vetted by an independent review
- For closed/legacy facilities, this refers to any identified sufficiently significant deficiency that reflects the current state of the facility versus a previous issue that has been addressed through a confirmed changed condition via the closure process

We have applied the above interpretation because we believe the disclosure effort is aimed at identifying tailings facilities that could potentially lead to a life-safety concerns, while avoiding falsely identifying issues for facilities that are decades old and no longer resemble the facility referred to in a former noted deficiency (i.e. the formerly noted deficiency is of a nature that materially no longer exists).

**Responses to
request for
information on
Gold Fields' 34 TSFs**



Agnew TSF 1

1. "Tailings Dam" Name/identifier	Agnew TSF 1
2. Location	28°00'28.70"S, 120°30'2.18"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	1986
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	9
9. Current Tailings Storage Impoundment Volume (m ³)	245 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	245 000
11. Most recent Independent Expert Review	29 Oct 18
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working document (2000) – stability assessment and slope design
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?	ANCOLD 2012
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?	a) No. See Q4
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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Agnew TSF 2

1. "Tailings Dam" Name/identifier	Agnew TSF 2
2. Location	28°00'45.5"S, 120°29'46.9"E
3. Ownership	Owned/Operated
4. Status	Re-mining
5. Date of initial operation	1991
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	25
9. Current Tailings Storage Impoundment Volume (m ³)	14 200 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	10 000 000
11. Most recent Independent Expert Review	29 Oct 18
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2001, 2002) – master plan – stability analysis External expert engineering reports (1995, 2000, 2003, 2010) – certificate of compliance – closure concept report – construction specification – design reports – operation works approval application
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?	ANCOLD 2012
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?	a) No. See Q20
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	TSF 2 is currently being re-mined using excavator, loader and trucks, for use as underground backfill

Agnew Redeemer

1. "Tailings Dam" Name/identifier	Agnew Redeemer
2. Location	28°03'45.7"S, 120°29'02.1"E
3. Ownership	Owned/Operated
4. Status	Partially active for rehabilitation only
5. Date of initial operation	2004
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	10 500 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	10 500 000
11. Most recent Independent Expert Review	29 Oct 18
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2001, 2002, 2018) – master plan External expert engineering reports (2002, 2010, 2012) – design report – geotechnical assessment – hydrogeological assessment – operations manual – underdrainage system construction specification
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?	ANCOLD 2012
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?	a) No. See Q20

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	In-pit TSF, with no embankments, that is periodically being topped-up to optimise rehabilitation landform

Agnew Songvang

1. "Tailings Dam" Name/identifier	Agnew Songvang
2. Location	28°08'28.3"S, 120°27'40.9"E
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2017/12/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	750 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	4 350 000
11. Most recent Independent Expert Review	29 Oct 18
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working document (2018) – operations manual External expert engineering reports (2004, 2005, 2015, 2016, 2018) – basis of design – design reports – dewatering investigation and upgrade – geophysical and hydrogeological baseline investigations – geotechnical study – stability review
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?	ANCOLD 2012
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?	a) No. See Q20

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	Active in-pit TSF with no above-ground embankments

Asanko TSF

1. "Tailings Dam" Name/identifier	Asanko TSF
2. Location	6°21'27.78"N, 1°59'16.96"E
3. Ownership	Non-operated JV
4. Status	Active
5. Date of initial operation	2016/01/26
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	26
9. Current Tailings Storage Impoundment Volume (m ³)	8 273 400
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	28 776 980
11. Most recent Independent Expert Review	11 Dec 18
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2012, 2013, 2015, 2016) – feasibility study update – geotechnical investigation – operating and monitoring manual – permitting design – stage 1 construction report – tailings physical and geochemistry properties testing
13. What is your hazard categorisation of this facility, based on consequence of failure?	Class A
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	a) Yes b) Nov 2018
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	-

Cerro Corona TSF

1. "Tailings Dam" Name/identifier	Cerro Corona TSF
2. Location	6°45'55.65"S, 78°38'28.06"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2008/09/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Centreline
8. Current Maximum Height (m)	137
9. Current Tailings Storage Impoundment Volume (m ³)	47 213 503
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	71 540 000
11. Most recent Independent Expert Review	31 Jan 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2005, 2007, 2008, 2009, 2010, 2012, 2014, 2015, 2016, 2017) - as-built plans - compactors and clay specifications - construction quality assurance - construction report - dam breach analysis - design report - failure modes and effects analysis - final design - flood inundation and hazard assessment - geochemical modelling - geotechnical investigation - hydrogeological study - integrated management system - operation, maintenance and surveillance manual - physical properties of beach tailings soils - seismic hazard assessment report - tailings pipeline system general design basis - upstream containment blanket design plans and reports
13. What is your hazard categorisation of this facility, based on consequence of failure?	Extreme
14. What guideline do you follow for the classification system?	ANCOLD 2012

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?	Internal & 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?	a) Yes b) Jun 2017
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	Tailings/decant discharge event on 16 Dec 2018 through failed water diversion pipeline underneath the facility. The incident did not compromise the dam's integrity or physical stability. See https://www.goldfields.com/reports/annual-report-2018/environmental-stewardship.php for more details.

Damang FETSF

1. "Tailings Dam" Name/identifier	Damang FETSF
2. Location	5°30'14.56"N, 1°50'6.08"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2018/01/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	18
9. Current Tailings Storage Impoundment Volume (m ³)	3 804 281
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	17 687 500
11. Most recent Independent Expert Review	29 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2009, 2011, 2012, 2013, 2015, 2017, 2018, 2019) - concept design report - conceptual closure plan - construction as-built report - dam break assessment - design optimization report - detailed design report - emergency response plan - environmental compliance monitoring plan - health and safety plan - life cycle management plan - management plan - monitoring (surveillance) plan - preliminary seismic hazard assessment - shear key review over alluvium zone - social responsibility plan - water balance review report
13. What is your hazard categorisation of this facility, based on consequence of failure?	Moderate
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	Internal & 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?	a) Yes b) Dec 2015
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	Minor piping event caused discharge of decant water during TSF commissioning on 5 Apr 2018. See https://www.goldfields.com/reports/annual-report-2018/environmental-stewardship.php for more details.

Damang ETSF

1. "Tailings Dam" Name/identifier	Damang ETSF
2. Location	5°30'47.98"N, 1°49'54.83"W
3. Ownership	Owned/Operated
4. Status	Closed & still rehabilitating
5. Date of initial operation	2000/12/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream and mod. Centreline
8. Current Maximum Height (m)	43
9. Current Tailings Storage Impoundment Volume (m ³)	56 570 686
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	56 570 686
11. Most recent Independent Expert Review	29 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2000, 2004, 2005, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017) - conceptual design report - construction report - dam break assessment - deposition and closure plan - design report - detailed design report - final design report - operations manual - overflow outlet works - preliminary seismic hazard assessment - raise as-built construction report - raise construction report - updated conceptual design
13. What is your hazard categorisation of this facility, based on consequence of failure?	Serious
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	Internal & 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?	a) Yes b) Dec 2015
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	A buttress has been installed to enhance long term post-seismic stability of the Southern Causeway embankment. This TSF is currently inactive.

Damang STSF

1. "Tailings Dam" Name/identifier	Damang STSF
2. Location	5°29'40.91"N, 1°50'33.46"W
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	1997/11/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	19
9. Current Tailings Storage Impoundment Volume (m ³)	9 107 143
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	9 107 143
11. Most recent Independent Expert Review	29 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (1995, 1996, 1997, 1998, 2000) - construction report - detailed design - operations manual - preliminary seismic hazard assessment - proposed design modifications - rehabilitation and closure
13. What is your hazard categorisation of this facility, based on consequence of failure?	NA
14. What guideline do you follow for the classification system?	Ghana Minerals and Mining Law 1986 and Guidelines on Ghana's Mining Environmental Regulations, Final Draft 1994
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?	Internal & 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?	a) No. See Q4
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	

Granny Smith Cell 1

1. "Tailings Dam" Name/identifier	Granny Smith Cell 1
2. Location	28°49'22.48"S, 122°24'35.94"E
3. Ownership	Owned/Operated
4. Status	Inactive/Stand-by
5. Date of initial operation	1987/08/04
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	33
9. Current Tailings Storage Impoundment Volume (m ³)	24 769 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	25 500 000
11. Most recent Independent Expert Review	01 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2013) - monitoring protocol - tailings characterization External expert engineering reports (1993, 1994, 2000, 2001, 2003, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019) - cone penetration testing program - construction compliance report - construction inspection - CPT data analysis techniques - cracking on the decant causeway - critical phreatic levels - dam break assessment - deposition and construction schedule - embankment inspection - embankment stability analysis - environmental geochemical characteristics - final design report - geochemical characterisation - geotechnical investigation of embankment and stability analysis - groundwater flow and solute transport modelling - groundwater risk assessment. - hydrogeological assessment - monitoring bore hydrogeological investigation - operating manual - paste backfill recovery - performance review

	- permitted height increase - proposed re-permitted crest elevations - raise – technical specification - review of feasibility design - review of tailings disposal operations - seepage assessment - seepage characterisation and embankment stability - seepage interception trench - slope stability analysis - solids breach assessment - stability report - static and dynamic stability analysis - static and dynamic stability assessment - supplementary stability assessment - technical specification - technical audit reports - vibrating wire piezometer installation programme
13. What is your hazard categorisation of this facility, based on consequence of failure?	High B
14. What guideline do you follow for the classification system?	ANCOLD 2012
15. Has this facility, at any point in its history, failed to be confirmed or certified as stable, or 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?	a) Yes b) Nov 2018
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	Routine third party peer review of stability modelling in Q1 2019 indicated a reduction in the estimated factor of safety. Extensive inspections found no sign of any form of embankment instability. Tailings deposition ceased immediately, and enhanced survey and monitoring regime implemented as precautionary measures. Buttress construction works to maintain long term stability of this TSF cell to commence on completion of necessary laboratory testing, analysis and design works.

Granny Smith Cell 2

1. "Tailings Dam" Name/identifier	Granny Smith Cell 2
2. Location	28°49'5.87"S, 122°24'54.80"E
3. Ownership	Owned/Operated
4. Status	Re-mining
5. Date of initial operation	1987/12/05
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	35
9. Current Tailings Storage Impoundment Volume (m ³)	24 290 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	24 290 000
11. Most recent Independent Expert Review	01 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2013) - monitoring protocol - tailings characterization External expert engineering reports (1993, 1994, 2000, 2001, 2003, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019) - cone penetration testing program - construction compliance report - construction inspection - CPT data analysis techniques - cracking on the decant causeway - critical phreatic levels - dam break assessment - deposition and construction schedule - embankment inspection - embankment stability analysis - environmental geochemical characteristics - final design report - geochemical characterisation - geotechnical investigation of embankment and stability analysis - groundwater flow and solute transport modelling - groundwater risk assessment. - hydrogeological assessment - monitoring bore hydrogeological investigation - operating manual - paste backfill recovery - performance review

	- permitted height increase - proposed re-permitted crest elevations - raise – technical specification - review of feasibility design - review of tailings disposal operations - seepage assessment - seepage characterisation and embankment stability - seepage interception trench - slope stability analysis - solids breach assessment - stability report - static and dynamic stability analysis - static and dynamic stability assessment - supplementary stability assessment - technical specification - technical audit reports - vibrating wire piezometer installation programme
13. What is your hazard categorisation of this facility, based on consequence of failure?	High B
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	a) Yes b) Nov 2018
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	Currently being re-mined using excavator & trucks for use as underground backfill

Granny Smith Cell 3

1. "Tailings Dam" Name/identifier	Granny Smith Cell 3
2. Location	28°49'38.58"S, 122°24'9.42"E
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2000/01/10
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	21
9. Current Tailings Storage Impoundment Volume (m ³)	9 872 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	17 000 000
11. Most recent Independent Expert Review	01 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2013) - monitoring protocol - tailings characterization External expert engineering reports (1993, 1994, 2000, 2001, 2003, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019) - cone penetration testing program - construction compliance report - construction inspection - CPT data analysis techniques - cracking on the decant causeway - critical phreatic levels - dam break assessment - deposition and construction schedule - embankment inspection - embankment stability analysis - environmental geochemical characteristics - final design report - geochemical characterisation - geotechnical investigation of embankment and stability analysis - groundwater flow and solute transport modelling - groundwater risk assessment. - hydrogeological assessment - monitoring bore hydrogeological investigation - operating manual - paste backfill recovery - performance review

	- permitted height increase - proposed re-permitted crest elevations - raise – technical specification - review of feasibility design - review of tailings disposal operations - seepage assessment - seepage characterisation and embankment stability - seepage interception trench - slope stability analysis - solids breach assessment - stability report - static and dynamic stability analysis - static and dynamic stability assessment - supplementary stability assessment - technical specification - technical audit reports - vibrating wire piezometer installation programme
13. What is your hazard categorisation of this facility, based on consequence of failure?	High C
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	a) Yes b) Nov 2018
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	-

Gruyere IWL TSF

1. "Tailings Dam" Name/identifier	Gruyere IWL TSF
2. Location	27°58'56.58"S, 123°52'8.66"E
3. Ownership	Operated JV
4. Status	Under construction
5. Date of initial operation	Not Commissioned
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	13
9. Current Tailings Storage Impoundment Volume (m ³)	0
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	22 000 000
11. Most recent Independent Expert Review	03 Apr 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2015, 2016, 2017, 2018, 2019) - construction report - construction scope of works and technical specification - design reports - detailed design - geochemical characterisation - materials assessment - operations manual - options study - rehabilitation soil requirements
13. What is your hazard categorisation of this facility, based on consequence of failure?	High C
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	a) Yes b) Sep 2017

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	TSF constructed but not yet commissioned as at end-Mar, 2019

Lawlers TSF 1

1. "Tailings Dam" Name/identifier	Lawlers TSF 1
2. Location	28°04'34.51"S, 120°32'26.01"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	1985
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	10
9. Current Tailings Storage Impoundment Volume (m ³)	511 066
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	511 066
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2007, 2019) - audit and assessment reports
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?	ANCOLD 2012
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?	a) No. See Q4
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?	No

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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Lawlers TSF 2

1. "Tailings Dam" Name/identifier	Lawlers TSF 2
2. Location	28°04'59.55"S, 120°32'10.96"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	1988
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	22
9. Current Tailings Storage Impoundment Volume (m ³)	4 800 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	4 800 000
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (1993, 2001, 2002, 2003, 2007, 2010, 2011, 2013, 2019) - arsenic-solubility behaviour - audit and assessment reports - capping project - geochemical characterisation - geotechnical assessment report - materials characterisation assessment - performance review - rehabilitation - suppression of arsenic-solubility by gypsum - works approval application
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?	ANCOLD 2012
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?	a) No. See Q4
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?	No
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	

Lawlers GEP TSF

1. "Tailings Dam" Name/identifier	Lawlers GEP TSF
2. Location	28°04'44.2"S, 120°32'18.0"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	2004/04/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	1 281 409
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	1 281 409
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - operations manual External expert engineering reports (2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011) - audit reports - construction report - monitor bore drilling program - operations manual - strategy
13. What is your hazard categorisation of this facility, based on consequence of failure?	NA
14. What guideline do you follow for the classification system?	NA
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?	a) No. See Q4
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?	No
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	In-pit TSF located underneath TSF 3

Lawlers LEP TSF

1. "Tailings Dam" Name/identifier	Lawlers LEP TSF
2. Location	28°04'43.8"S, 120°32'35.6"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	2006/01/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	1 216 794
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	1 216 794
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - operations manual External expert engineering reports (2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011) - audit reports - construction report - monitor bore drilling program - operations manual - strategy
13. What is your hazard categorisation of this facility, based on consequence of failure?	NA
14. What guideline do you follow for the classification system?	NA
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?	a) No. See Q4
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?	No
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	In-pit TSF located underneath TSF 3

Lawlers CI TSF

1. "Tailings Dam" Name/identifier	Lawlers CI TSF
2. Location	28°05'00.64"S, 120°33'08.23"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	2000/08/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	670 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	670 000
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - operations manual External expert engineering reports (1999, 2000, 2001, 2002, 2003, 2004, 2011, 2012, 2013, 2019) - arsenic-solubility behaviour - audit reports - construction report - decommissioning report & closure plan - geochemical characterisation - materials characterisation assessment - performance review
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?	ANCOLD 2012
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?	a) No. See Q4

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?	No
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	In-pit TSF that is closed and rehabilitated

Lawlers HPI TSF

1. "Tailings Dam" Name/identifier	Lawlers HPI TSF
2. Location	28°05'03.98"S, 120°33'31.20"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	2001/12/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	971 951
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	971 951
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - operations manual External expert engineering reports (1999, 2001, 2002, 2003, 2004, 2011, 2012, 2013, 2019) - arsenic-solubility behaviour - audit reports - construction report - decommissioning report & closure plan - geochemical characterisation - materials characterisation assessment - performance review
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?	ANCOLD 2012
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?	a) No. See Q4

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?	No
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	In-pit TSF that is closed and rehabilitated

Lawlers TSF 3

1. "Tailings Dam" Name/identifier	Lawlers TSF 3
2. Location	28°04'51.46"S, 120°32'37.12"E
3. Ownership	Owned/Operated
4. Status	Closed & rehabilitated
5. Date of initial operation	2008/12/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	11
9. Current Tailings Storage Impoundment Volume (m ³)	2 500 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	2 500 000
11. Most recent Independent Expert Review	23 Apr 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - flood repairs and mitigation - operations manual External expert engineering reports (2007, 2008, 2010, 2011, 2012, 2013, 2014, 2019) - audit reports - construction monitoring - construction reports - decommissioning review - geotechnical assessment and investigation - hydrogeological investigations - materials characterisation assessment - operations manual - options study - risk assessment - strategy - works approval application
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?	ANCOLD 2012
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?	a) No. See Q4
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?	No
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	

Lepanto TD5A

1. "Tailings Dam" Name/identifier	Lepanto TD5A
2. Location	16°53'56.11"N, 120°46'1.97"E
3. Ownership	Non-operated JV
4. Status	Active
5. Date of initial operation	1993
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	95
9. Current Tailings Storage Impoundment Volume (m ³)	12 800 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	14 300 000
11. Most recent Independent Expert Review	07 Mar 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (1995, 2012, 2013, 2014, 2016, 2017, 2018, 2019) - audit report - compliance action plan - construction summary - environmental compliance monitoring report - field density test-calibration - longitudinal & cross sections - monitoring protocol - operating manual - seismicity monitoring survey status report - sieve analysis for sand filter material - water quality baseline data-analysis and interpretation External expert engineering reports (1991, 1995, 1998, 2000, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019) - audit reports - concept strengthening options - construction staging - dam wall drilling method statement - decant structure strengthening - decants -diversion tunnel outlet portal - design basis and information - design-detailed engineering - detailed seismicity assessment - dynamic analysis - environmental tailings and groundwater review - geotechnical borehole and test pit locations

	- geotechnical investigation - landslide stabilization measures - operational review - options study - revised TSF siting study - risk assessment - stability review
13. What is your hazard categorisation of this facility, based on consequence of failure?	Extreme
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	Internal & 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?	a) No. See Q3
18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	a) Yes b) Unknown
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?	No
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	This TSF is located in a high seismicity location. Studies are ongoing to characterise the seismic response of the embankment to large-scale earthquakes.

St Ives TSF 1

1. "Tailings Dam" Name/identifier	St. Ives TSF 1
2. Location	31°22'43"S, 121°47'37"E
3. Ownership	Owned/Operated
4. Status	Re-mining
5. Date of initial operation	1987/01/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	30
9. Current Tailings Storage Impoundment Volume (m ³)	12 000 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	8 000 000
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - monitoring protocol External expert engineering reports (2011, 2012, 2013, 2014, 2015, 2016, 2018) - audit and management reviews - mine closure plan
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?	ANCOLD 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
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?	a) No. See Q20
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

Currently being re-mined using excavator & trucks for use as underground backfill.

St Ives TSF 2

1. "Tailings Dam" Name/identifier	St. Ives TSF 2
2. Location	31°23'10"S, 121°47'50"E
3. Ownership	Owned/Operated
4. Status	Inactive/Care & Maintenance
5. Date of initial operation	1994/10/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	36
9. Current Tailings Storage Impoundment Volume (m ³)	8 800 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	8 800 000
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - monitoring protocol External expert engineering reports (1998, 2001, 2005, 2009, 2010, 2011, 2012, 2013, 2015, 2016, 2018) - audit and management reviews - geotechnical assessments - mine closure plan - operating manual - piezometer installation and geotechnical investigation
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?	ANCOLD 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
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?	a) No. See Q20

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	Remote location - no downstream communities

St Ives TSF 3

1. "Tailings Dam" Name/identifier	St. Ives TSF 3
2. Location	31°22'49"S, 121°47'03"E
3. Ownership	Owned/Operated
4. Status	Inactive/Care & Maintenance
5. Date of initial operation	2003/02/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	25
9. Current Tailings Storage Impoundment Volume (m ³)	17 400 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	17 400 000
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012) - monitoring protocol External expert engineering reports (1998, 2005, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018) - audit and management reviews - closure implementation plan - construction report - design report - mine closure plan - operating manual - piezometer installation and geotechnical investigation
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?	ANCOLD 2012
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?	a) No. See Q20

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	Remote location - no downstream communities

St Ives TSF 4

1. "Tailings Dam" Name/identifier	St. Ives TSF 4
2. Location	31°19'59"S, 121°43'47"E
3. Ownership	Owned/Operated
4. Status	Inactive/Stand-by
5. Date of initial operation	2012/09/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	15
9. Current Tailings Storage Impoundment Volume (m ³)	8 130 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	8 130 000
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2009, 2019) - mining proposal - tailings management plan External expert engineering reports (2006, 2009, 2012, 2013, 2014, 2015, 2016, 2018) - audit and management reviews - construction reports - design reports - detail design report - preliminary geotechnical assessment - safety in design report
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?	ANCOLD 2012
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?	a) No. See Q20

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	Remote location - no downstream communities

St Ives North Orchin

1. "Tailings Dam" Name/identifier	St. Ives North Orchin
2. Location	31°19'03"S, 121°45'30"E
3. Ownership	Owned/Operated
4. Status	Inactive/Care & Maintenance
5. Date of initial operation	2010/07/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	6 900 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	6 900 000
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2012, 2019) - monitoring protocol - tailings management plan External expert engineering reports (2005, 2011, 2012, 2013, 2015, 2016, 2018) - audit and management reviews - hydrogeological investigation
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?	ANCOLD 2012
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?	a) No. See Q20
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	In-pit TSF - no embankments

St Ives Leviathan

1. "Tailings Dam" Name/identifier	St. Ives Leviathan
2. Location	31°19'38"S, 121°46'19"E
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2016/11/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	In-pit
8. Current Maximum Height (m)	0
9. Current Tailings Storage Impoundment Volume (m ³)	6 810 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	21 476 667
11. Most recent Independent Expert Review	23 Nov 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working document (2019) - tailings management plan External expert engineering reports (2014, 2016, 2018) - audit and management review - construction compliance report - deposition modelling - groundwater aspects
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?	ANCOLD 2012
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?	a) No. See Q20
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	In-pit TSF - no embankments

South Deep South Shaft

1. "Tailings Dam" Name/identifier	South Deep South Shaft
2. Location	26°24'52.77"S, 27°40'36.43"E
3. Ownership	Owned/Operated
4. Status	Inactive/Care & Maintenance
5. Date of initial operation	1968
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	45
9. Current Tailings Storage Impoundment Volume (m ³)	15 105 408
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	15 105 408
11. Most recent Independent Expert Review	01 Sep 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2012, 2015, 2017, 2018) - audit reports - closure plan - rehabilitation plan - stability review
13. What is your hazard categorisation of this facility, based on consequence of failure?	High B
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	a) 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?	No

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

TSF decommissioned in 2011. Future re-mining is planned. Reassessment of current TSF stability is in progress.

South Deep Twin Shaft

1. "Tailings Dam" Name/identifier	South Deep Twin Shaft
2. Location	26°25'6.26"S, 27°40'13.87"E
3. Ownership	Owned/Operated
4. Status	Re-mining
5. Date of initial operation	1982
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	39
9. Current Tailings Storage Impoundment Volume (m ³)	23 807 642
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	21 896 454
11. Most recent Independent Expert Review	01 Sep 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2012, 2015, 2017, 2018) - audit reports - closure plan - rehabilitation plan - stability review
13. What is your hazard categorisation of this facility, based on consequence of failure?	High B
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	a) Yes b) Unknown
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?	No

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

TSF decommissioned in 2011 and currently being re-mined and reprocessed.
Reassessment of current TSF stability is in-progress.

South Deep Doornpoort

1. "Tailings Dam" Name/identifier	South Deep Doornpoort
2. Location	26°27'45.38"S, 27°38'54.11"E
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2011/04/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	19
9. Current Tailings Storage Impoundment Volume (m ³)	7 219 509
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	14 473 304
11. Most recent Independent Expert Review	01 Sep 17
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	Internal technical working documents (2014) - mandatory code of practice External expert engineering reports (1998, 2003, 2005, 2007, 2008, 2009, 2010, 2012, 2014, 2015, 2017, 2018, 2019) - audit report - closure framework - dam break assessment - design of pipe encasing and temporary penstocks - detailed design - detailed design of the return water dam - environmental impact assessment/environmental management programme - geotechnical investigation and side slope stability assessment - hydrogeological investigation and impact assessment - operating manual - rehabilitation plan - risk assessment - seepage analysis - site selection - site selection review and capital cost estimate - slope stability analysis
13. What is your hazard categorisation of this facility, based on consequence of failure?	High B
14. What guideline do you follow for the classification system?	ANCOLD 2012

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?	a) Yes b) 2008
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?	No
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	

Tarkwa TSF 1

1. "Tailings Dam" Name/identifier	Tarkwa TSF1
2. Location	5°20'21.57"N, 2° 1'31.73"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2004/09/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	39
9. Current Tailings Storage Impoundment Volume (m ³)	44 153 846
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	53 615 385
11. Most recent Independent Expert Review	06 Feb 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2014, 2016, 2018) - construction reports - costed mine reclamation plan - dam breach assessment - dam break risk assessment and zone of influence - design report - design review - detailed design report - drilling and cone penetration test report - environmental impact statement - expansion design - final design report - geotechnical parameter gap analysis - raise designs - review of stability - soil investigation - tailings test report
13. What is your hazard categorisation of this facility, based on consequence of failure?	Class C
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	Internal & 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?	a) Yes b) 2013
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	-

Tarkwa TSF 2

1. "Tailings Dam" Name/identifier	Tarkwa TSF2
2. Location	5°21'5.35"N, 2° 1'54.79"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2008/08/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	37
9. Current Tailings Storage Impoundment Volume (m ³)	41 538 462
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	58 461 538
11. Most recent Independent Expert Review	06 Feb 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2008, 2010, 2013, 2014, 2015, 2018) - dam break risk assessment and zone of influence - design reports - detailed design report and operating requirements - seepage and slope stability analysis - side slope stability report
13. What is your hazard categorisation of this facility, based on consequence of failure?	Class B
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	Internal & 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?	a) Yes b) 2014
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	-

Tarkwa TSF 3

1. "Tailings Dam" Name/identifier	Tarkwa TSF3
2. Location	5°21'53.61"N, 2° 1'46.36"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	2011/11/01
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Upstream
8. Current Maximum Height (m)	30
9. Current Tailings Storage Impoundment Volume (m ³)	25 333 333
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	25 333 333
11. Most recent Independent Expert Review	06 Feb 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2011, 2014, 2015) - dam break risk assessment and zone of influence - design reports - detailed design report and operating requirements - side slope stability report
13. What is your hazard categorisation of this facility, based on consequence of failure?	Class B
14. What guideline do you follow for the classification system?	Ghana (LI 2182)
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?	Internal & 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?	a) Yes b) 2014
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	-

Tarkwa TSF 5

1. "Tailings Dam" Name/identifier	Tarkwa TSF5
2. Location	5°20'45.48"N, 2° 1'7.05"W
3. Ownership	Owned/Operated
4. Status	Active
5. Date of initial operation	Q2 2018
6. Is the dam currently operated or closed as per currently approved design?	Yes
7. Raising method	Downstream
8. Current Maximum Height (m)	12
9. Current Tailings Storage Impoundment Volume (m ³)	1 500 000
10. Planned Tailings Storage Impoundment Volume in 5 years' time (m ³)	16 100 000
11. Most recent Independent Expert Review	06 Feb 19
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure	External expert engineering reports (2015, 2018) - construction evaluation - dam breach assessment report - final construction report - final design report
13. What is your hazard categorisation of this facility, based on consequence of failure?	Medium
14. What guideline do you follow for the classification system?	ANCOLD 2012
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?	Internal & 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?	a) Yes b) Oct 2015
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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Forward looking statements disclaimer

This document contains forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the U.S. Securities Exchange Act of 1934, as amended, or the Exchange Act, with respect to Gold Fields' tailing storage facilities, management of such facilities and certain other operational matters. These forward-looking statements, wherever they may occur in this document represent the current expectations of Gold Fields, reflecting the best judgment of the senior management of Gold Fields and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. As a consequence, these forward-looking statements should be considered in light of various important factors, including those set forth in this document. Important factors that could cause actual results to differ materially from such statements are set out more fully in Gold Fields most recent annual report on Form 20-F filed with the US Securities and Exchange Commission, which can be found free of charge on EDGAR at www.sec.gov.