



# Tailings Storage Facility Inventory

as of January 31, 2020

1	2	2a	2b	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Tailing Storage Facility Name	Site Name (Location)	TSF Centroid Latitude	TSF Centroid Longitude	Ownership	TSF Status	TSF Start-up	Design Intent Compliance <sup>(a)</sup>	Raise Methodology <sup>(b)</sup>	Current Maximum Height	Current Tailings Volume	Planned Ultimate Tailings Volume Jan 2024	Most recent Independent Review <sup>(c)</sup>	Engineering Records Complete	Hazard Classification <sup>(d)</sup>	Classification Guideline <sup>(e)</sup>	Stability ever Questioned <sup>(f)</sup>	Internal Oversight and/or External Support	Most Recent Dam Breach Study	Closure Plan in Place / Long Term Monitoring Included <sup>(g)</sup>	Climate Change Effects Considered <sup>(h)</sup>	Notes <sup>(i)</sup>
						(year)			(m)	(Mm3)	(Mm3)	(Month Year)	(Yes / No)			(Yes / No)	(Yes / No)	(Month Year)	(Yes / No)	(Yes / No)	
Fekola TSF <sup>1</sup>	Fekola (Mali)	12°33'06" N	11°21'48" W	B2Gold (Mali) <sup>5</sup>	Operating	2017	Yes	DS	34	22.3	74.7	None <sup>11</sup>	Yes	Very High	ANCOLD	No	Yes and Yes	In Progress	Yes and Yes	Yes	
Otjikoto TSF <sup>2</sup>	Otjikoto (Namibia)	20°00'15" S	17°04'50" W	B2Gold (EVI) <sup>6</sup>	Operating	2014	Yes	US <sup>9</sup>	16	20.3	39.3	Dec 2016	Yes	Medium	SANS 10286	No	Yes and Yes	Jul 2013 <sup>17</sup>	Yes and Yes	Yes	
Masbate TSF <sup>3</sup>	Masbate (The Philippines)	12°26'45" N	123°23'47" E	Filminera (Zoom), PGPRC <sup>7</sup>	Operating	2009	Yes	DS, CL <sup>10</sup>	55	94.3	144.3	None <sup>12</sup>	Yes	Extreme	ANCOLD	Yes <sup>15</sup>	Yes and Yes	Apr 2019	Yes and Yes	Yes	
Atlas TSF <sup>4</sup>	Masbate (The Philippines)	12°28'38" N	123°23'03" E	Filminera (Zoom), PGPRC <sup>7</sup>	Inactive <sup>8</sup>	1980	Unknown	DS	27.5	22.8	22.8	Unknown <sup>13</sup>	No <sup>14</sup>	not rated	not defined	Yes <sup>16</sup>	Yes and Yes	Unknown <sup>18</sup>	Yes and Yes	Yes	

## Footnotes:

- "Tailings Facility" Name/identifier. Please identify every tailings storage facility and identify if there are multiple dams (saddle or secondary dams) within that facility.**
  - Fekola facility currently consists of three dam segments joined at approximately right angles to contain tailings within a natural basin.
  - Otjikoto facility consists of seven dam segments that form a ring.
  - Masbate facility consists of multiple saddle dams. Currently dams in place include, Main Dam, Saddle Dam 1&2, Saddle Dam 4, Saddle Dam 7, and Saddle Dam 8. Other segments of saddles have been eliminated as the facility reservoir level increased as they combined into one of the aforementioned dams.
  - Atlas facility consists of three separate ponds with some segments of the dam walls shared with the adjacent ponds.
- Location.**
  - 2a, 2b, Latitude and Longitude in decimal degrees of the approximate TSF centroid, as obtained from Google Earth Pro.
- Ownership Please specify: Owned and Operated, Subsidiary, JV, NOJV, as of March 2019**
  - B2Gold owns a 80% interest in Fekola S.A. the Company's Malian exploitation company, the State of Mali holds the remaining 20% interest.
  - B2Gold Namibia, the holder of Mining License 169 and operator of the Otjikoto Mine is 90% owned, indirectly, by B2Gold and 10% by EVI Mining (Proprietary) Ltd., a Namibian empowerment company.
  - B2Gold holds its project interest through indirectly-owned subsidiaries. B2Gold has a 40% interest in Filminera and a 100% interest in PGPRC. The remaining 60% interest in Filminera is held by a Philippines-registered company, Zoom Mineral Holdings Inc. ("Zoom") that is owned by a Philippine shareholder.
- Status: Active, Inactive/Care and Maintenance, Closed etc. Closed to mean: a closure plan was developed and approved by the relevant local government agency, and key stakeholders were involved in its development; a closed facility means the noted approved closure plan was fully implemented or the closure plan is in the process of being implemented. A facility that is inactive or under C&M is not considered closed until such time a closure plan has been implemented.**
  - Legacy facility inherited during property acquisition, originally thought to be closed, currently under investigation to confirm if closure definition can be applied.
- Date of initial operation.**
- Is the Dam currently operated or closed as per currently approved design?**
  - Unknown is indicated for legacy TSF that was acquired by B2Gold for which Engineering Records are not complete and the original design, operation and closure intent is not fully known.
- Raising method: Upstream, Centerline, Modified Centreline, Downstream, Landform, Other.**
  - Upstream (US), centreline (CL), modified centreline (MCL), and/or downstream (DS) methodologies may have been used at any given facility
  - Otjikoto facility implements an upstream raise methodology, initial raise slurry deposition was performed by paddocking, in January 2017 the deposition methodology was changed to cycloning.
  - The Masbate facility predominantly implements a downstream raise methodology, with the exception of the Main Dam stage 10 and stage 11 which were constructed as centreline raises.
- Current Maximum Height**
- Current Tailings Storage Impoundment Volume: (m<sup>3</sup> as of March 2019)**
- Planned Tailings Storage Impoundment Volume in 5 years time. (m<sup>3</sup> as planned for January 2024)**
- Date of most recent Independent Expert Review. For this question we take 'Independent' to mean a suitably qualified individual or team, external to the Operation, that does not direct the design or construction work for that facility.**
  - Most recent 3<sup>rd</sup>-Party Independent Review.
  - The Fekola facility is two years old, a 3<sup>rd</sup>-Party Independent Review will be scheduled within the next three years, in line with ANCOLD guidelines and internal B2Gold policies; each tailings facility will conduct a 3<sup>rd</sup> Party Independent Review at minimum of every 5 years.
  - The Masbate TSF facility has scheduled the 3<sup>rd</sup>-Party Independent Review to take place in Q1 2020.
  - Historical inspections and reports of the facility exist, however none match the level of international accepted criteria of a 3<sup>rd</sup>-Party Independent Review. A independent consultant will perform a risk assessment Q1 2020 of the historic facility to determine a path towards formal closure.
- Do you have full and complete relevant engineering records including design, construction, operation, maintenance, and/or closure? We take the word "relevant" here to mean that you have all necessary documents to make an informed and substantiated decision on the safety of the dam, be it an old facility, or an acquisition, or**
  - No indicates for this legacy TSF that was acquired by B2Gold that not all Engineering Records may have been provided during acquisition.
- What is your hazard categorisation of this facility, based on the consequence of failure?**
  - It is imperative to note that hazard classification is determined based on the consequential impact if a facility were to experience a failure. The listed hazard classifications do not in any way represent a probability of failure, or risk of failure, of a facility.
- What guideline do you follow for the classification system?**
  - ANCOLD = Australian National Committee on Large Dams, SANS 10286 = South Africa Code of Practice for Mine Residue Deposits

**Footnotes (continued):**

**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). We note that this will depend on factors including local legislation that are not necessarily tied to best practice. As such, and because remedial action may have been taken, a “Yes” answer may not indicate heightened risk. Stability concerns might include toe seepage, dam movement, overtopping, spillway failure, piping etc. If yes, have appropriately designed and reviewed mitigation actions been implemented? We also note that this question does not bear upon the appropriateness of the criteria, but rather the stewardship levels of the facility or the dam.**

(f) 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 deficiency for the current life/stage and for a previous life/stage, any deficiency that was not addressed as vetted by independent review; for closed/legacy facilities, this refers to any deficiency identified that reflects the current state of the facility.

<sup>15.</sup> A peer review of the stage 11 design by a consultant engineering firm responsible for construction monitoring found that the stage 11 pseudo-static conditions resulted in a factor of safety less than unity. The deficiency was due to different assumed parameters of tailings strength characteristics. As a result in-situ shear strength tests of tailings were obtained in 2019 and a detailed stability deformation analysis is underway. Based on preliminary data returned from the in-situ testing we expect the original seismic performance concern to be eliminated.

<sup>16.</sup> B2Gold acquired the facility in 2013. A tailings management study from 1997 noted stability concerns under pseudo-static conditions and recommended a stabilization buttress. In 2010, an additional study concluded similar findings. Sections of the historic facility with lower factors of safety were prioritized first for a buttress, which was subsequently completed. A 3rd-Party Independent Risk Assessment is scheduled for Q1 2020 to review historical information and performance monitoring data of the inactive facility. It is important to note that the facility has been inactive for 30 years (since 1990) and the monitoring data returned over this time has not indicated stability concerns.

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

**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? Please answer 'yes' or 'no', and if 'yes', provide a date.**

<sup>17.</sup> A dam breach inundation map was generated at the design stage of the facility assuming a final facility conditions.

<sup>18.</sup> Based on B2Gold's understanding of available Engineering Records no historical Dam Breach Studies exist. A Dam Breach Study may be scheduled pending the results of the 3rd-Party Independent Risk Assessment scheduled for Q1 2020.

**18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring? Please answer both parts of this question (e.g. Yes and Yes)**

(g) Closure plans are generated from start of design of a facility and are regularly updated throughout the life of the facility. Closure plans begin at a conceptual state and are progressively updated over the life of mine.

**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?**

(h) Climate change effects are considered through regular review of extreme weather events records (e.g., event return period and precipitation magnitude). In addition, B2Gold plans to further incorporate climate change risks into our enterprise and site assessment and planning processes, to better adapt to the physical impacts of climate change and to increase the resilience of our operations and business.

**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.**

(i) Information is current as of the date 30 November 2019.