



# Tailings Management

This document has been prepared in response to the request for disclosure received from [The Investor Mining & Tailings Safety Initiative](#) in relation to Iluka's tailing storage facilities. The Investor Mining & Tailings Safety Initiative is an investor led engagement for institutional investors active in extractive industries to enable better understanding of the scale of social and financial risks associated with tailings storage facilities. It is governed through a Steering Committee Chaired by the Church of England Pensions Board and the Swedish Council of Ethics of the AP Funds.

**A. Provide an overview of your tailings management system, and how you manage risk.**

Iluka Resources (Iluka) takes a risk based approach to the management of its tailing storage facilities (TSF), none of which are constructed using upstream raised methods. All of Iluka's TSF are constructed using downstream method or final height embankment, and are managed in accordance with ANCOLD guidelines, including internal and external risk management protocols. Internal risk management protocols include risk focused surveillance systems, internal geotechnical risk reporting and tailings/water management focus meetings. Geotechnical auditing of TSF is undertaken by internationally reputable geotechnical specialists and forms part of Iluka's external risk management protocol.

**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?**

Iluka's approach toward tailings management has not changed in light of the recent tragic failures of tailings storage facilities. As noted, all of Iluka's TSF are constructed using downstream raising methods. The internal and external risk management protocols that Iluka employs at its TSF are aligned with ANCOLD guidelines and are deemed of high standard and appropriate for our facilities.

## Australian Operations

	Jacinth	Cataby	Narngulu	North Capel
1. "Tailings Dam" Name/identifier	Jacinth	Cataby	Narngulu	North Capel
2. Location	30.907S 132.22E	30.75S, 115.75E	28.82S, 114.67E	33.51S, 115.60E
3. Ownership	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated
4. Status	Cell 4 - Active (in pit, below surface)	Pit 12 (in-pit, below surface)	RD4, RD7, OT5, SD8	IO 1-5, NAE 1-3, AE1-3, SSD
5. Date of initial operation	2018	2019	1986	1991
6. Is the Dam currently operated or closed as per currently approved design?	Yes	Yes	Yes	Yes
7. Raising method	Downstream constructed	Downstream constructed	Downstream constructed	Downstream constructed
8. Current Maximum Height	37m	4m	5m	8m
9. Current Tailings Storage Impoundment Volume	2Mm <sup>3</sup> (in-pit)	0.9Mm <sup>3</sup> (in-pit)	Lined evaporation ponds.	2.5Mm <sup>3</sup> (in lined TSFs)
10. Planned Tailings Storage Impoundment Volume in 5 years' time.	2.5Mm <sup>3</sup> (in-pit)	19.5Mm <sup>3</sup> (in-pit)	Lined evaporation ponds.	2.5Mm <sup>3</sup> (in lined TSFs)
11. Most recent Independent Expert Review	03/2019	Next planned for early 2020	2017, next planned for mid-2019	02/2019
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	Yes	Yes	All material information.	All material information.
13. What is your hazard categorisation of this facility, based on consequence of failure?	High	Category 3 (DMP) Very Low (ANCOLD)	Category 2 (DMP) Significant (ANCOLD)	Category 2 (DMP) Significant (ANCOLD)
14. What guideline do you follow for the classification system?	ANCOLD	DMP and ANCOLD	DMP and ANCOLD	DMP and ANCOLD
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	No	No	No
16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	Both (external ATC Williams)	Both (external Golder)	Both (external Wave)	Both (external Golder)
17. Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	No. Based on risk assessment undertaken. In-pit TSF, no downstream communities, ecosystems or critical infrastructure.	No. Based on risk assessment undertaken. In-pit TSF, no downstream communities, ecosystems or critical infrastructure.	Yes. Based on risk assessment and hazard classification under ANCOLD and DMP.	Yes. Based on risk assessment and hazard classification under ANCOLD and DMP.
18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	Yes	Yes	Yes	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?	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.
20. Any other relevant information and supporting documentation.	See Appendices	See Appendices	See Appendices	See Appendices

## Sierra Rutile Operations

1. "Tailings Dam" Name/identifier	Lanti	Gangama	Sierra Rutile MSP
2. Location	7.67N, 12.30W	7.72N, 12.35W	7.76N, 12.29W
3. Ownership	Subsidiary, fully owned and operated	Subsidiary, fully owned and operated	Subsidiary, fully owned and operated
4. Status	CP6 (above ground, in-pit), CP13 (above ground, in-pit)	G4/G7 (above ground, in-pit)	M6 (above ground, in-pit) & Sulphide pond (above ground, in-pit)
5. Date of initial operation	Active in 1990	2016	Unknown, before 2003
6. Is the Dam currently operated or closed as per currently approved design?	Yes	Yes	Yes
7. Raising method	Downstream constructed	Downstream constructed	Downstream constructed
8. Current Maximum Height	approx. 25m overall (approx. 10m lifts)	20m	5m
9. Current Tailings Storage Impoundment Volume	63Mm <sup>3</sup> (containment)	3Mm <sup>3</sup> (containment)	1.2Mm <sup>3</sup> (containment)
10. Planned Tailings Storage Impoundment Volume in 5 years' time.	15Mm <sup>3</sup> (containment)	5Mm <sup>3</sup> (containment)	0.4Mm <sup>3</sup> (containment)
11. Most recent Independent Expert Review	04/2019	04/2019	04/2019
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure?	No information available prior to acquisition by Iluka (2016)	No information available prior to acquisition by Iluka (2016)	No information available prior to acquisition by Iluka (2016)
13. What is your hazard categorisation of this facility, based on consequence of failure?	High	High	High
14. What guideline do you follow for the classification system?	ANCOLD	ANCOLD	ANCOLD
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).	Post-acquisition 2016: Yes (CP11 was buttressed due to seepage, similar is planned for CP13)	Post-acquisition 2016: Yes (G4 stabilised with buttress in absence of design info)	Post-acquisition 2016: No (However M6 remediation and raise works commenced due to pre-acquisition instability)
16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	Both (external Knight Piesold)	Both (external Knight Piesold)	Both (external Knight Piesold)
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?	Yes, initial study work undertaken in 2018, with further formal studies commencing 2019.	Yes, initial study work undertaken in 2018, with further formal studies commencing 2019.	Yes, initial study work undertaken in 2018, with further formal studies commencing 2019.
18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	No. Studies commencing 2019.	No. Studies commencing 2019.	No. Studies commencing 2019.
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?	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.	Currently undertaking stormwater analysis to meet ANCOLD guideline requirements.
20. Any other relevant information and supporting documentation.	See Appendices	See Appendices	See Appendices

## Appendices

- Refer to Iluka's Sustainability Report 2018

<https://www.iluka.com/2018-sustainability-report/sustainability-2018>

- Refer to BoAML Global Metals, Mining and Steel Conference Presentation 2019

[https://www.iluka.com/getattachment/17ef7194-02d6-453f-b0c1-2410f0a2d1df/presentation-boaml-conference-\(barcelona\).aspx](https://www.iluka.com/getattachment/17ef7194-02d6-453f-b0c1-2410f0a2d1df/presentation-boaml-conference-(barcelona).aspx)

- Refer to Informa Mineral Sands Conference 2019 Presentation

<https://www.iluka.com/getattachment/feb896b3-8be3-4693-aae5-ba6faa1123a5/presentation-informa-mineral-sands-conference-2019.aspx>

- Refer to Iluka Resources 2018 Annual Reporting Suite

<https://www.iluka.com/investors-media/results-and-presentations/2018-annual-reporting-suite>