vedanta
transforming elements

VEDANTA'S COMMITMENT TO SUSTAINABLE TAILINGS MANAGEMENT

FACT SHEET – FEBRUARY 2019

Lisheen, Ireland

Vedanta oversees 25 tailings management facilities (TMFs) and two water dams. Our commitment to sustainability and the principles of Zero Harm, Zero Waste and Zero Discharge means that the way we manage tailings is central to our business.

Vedanta has implemented global leading practice in tailings dam management and has appointed a global expert – Golder Associates – to provide long-term monitoring and advice on the design, construction and operation of all our tailings facilities.

Vedanta fully complies with the International Council on Mining and Metals (ICMM) approach to tailings management.

TAILINGS MANAGEMENT PROCESS

Tailings (or slurry) are the waste materials produced after the extraction of minerals and metals from mined ore, largely of powdered rock and water.

From the mill, the tailings are often pumped to surface storage facilities which are commonly constructed using earth dams. These range in size from that of a medium-sized swimming pool to areas over 1,000 hectares. As the sandy residue of tailings gradually drains and becomes compact and dry, grass and other vegetation is planted to stabilise the environment, a process known as rehabilitation.

Before the water in the tailings can be used again, or discharged into the local drainage system, it must be treated to remove harmful substances that could pollute the environment and/or jeopardise the health and safety of local communities near the facility.

If not managed properly, tailings can impact the environment and human health, with pollution from effluent and dust emissions being potentially toxic to humans, animals and plants. This harm is multiplied should a tailings storage facility physically fail. Flooding from tailings materials can damage the surrounding environment and lead to loss of human life.

Source: ICMM

ZERO HARM

ZERO WASTE

ZERO DISCHARGE

TAILINGS MANAGEMENT PROCESS (continued)

After the tragedy at the Vale/BHP operation at Samarco in Brazil's Minas Gerais province in November 2015, Vedanta instituted a tailings management assessment process across the entire business. These assessments were based on the potential impact of any tailings management failure, not on probability – which is always very low. Since then, any dams with noted concerns around structural testing and dam management have been assessed and the concerns addressed, with a notable reduction in associated risk.

This improvement was achieved through a range of dedicated tailings management teams at the respective businesses; implementation of the Group standards; specific pre-monsoon preparations; and Group oversight, including the Vedanta Risk Committee, Sustainability Committee, and Executive Committee.

The risk assessments conducted by Vedanta's tailings management auditors were both qualitative and quantitative, included detailed engagement with and input from teams on-site, and used international standards for similar facilities as their baseline. The outcomes of the assessments focused on potential causes for embankment failure that could release tailings. Risks were ranked in relation to their impact on health and safety, the environment, operational economic sustainability, and Vedanta's corporate reputation.

The outcome of the 2016 audit process was the development of a Tailings Management Standard, which outlines requirements for the investigation, planning, design, construction, and operations, closure and rehabilitation of TMFs across Vedanta. This standard was finalised at the start of 2017 and applies to all Vedanta TMFs, across all our operations. In addition to the documentary guidance, a number of training seminars were held for TMF staff.

"TMF management has been improved significantly, specifically with a focus on embankment stability. TMF committees have proven to be a key success factor in the implementation of the Vedanta TMF standard"

Golder Associates – January 2019

Gamsberg TMF

OUR TMF STANDARDS

Performance standards for TMFs are in place across the Group, focusing on the full lifecycle of the tailings process, from investigation, planning and design, to construction, operations, closure and rehabilitation. It is applicable to all existing and future tailing facilities in mining operations and ash ponds in the coal-based power plants.

CRITICAL ASPECTS OF VEDANTA'S TMF STANDARDS INCLUDE:

TMF planning and design

- Site selection must be based on a comprehensive environmental and social impact assessment, economics, and public health and safety risk over the life cycle of the tailing facility as per Good International Industry Practice.
- Dam break analysis must be conducted based on the advice of the designer/ consultant to quantify the TMF-related risks if the TMF is located upstream or close to communities or sensitive environmental areas.
- Design must be based on best available technology, to minimise the environmental, social, and economic risks, at an optimal total cost of ownership over the life cycle of the operation.

TMF construction

- Every Vedanta unit will appoint a qualified third party consultant for supervision and quality assurance of their TMF construction, and will obtain appropriate construction reports.

TMF operation and management – all Vedanta units must:

- have a tailings management committee with defined roles and responsibilities led by the process or ash department;
- develop, operate, monitor and manage the TMF in line with their Tailings Management Plan;
- conduct periodic risk assessments of the TMF and develop mitigation plans to minimise public health and safety, environmental, social and economic risks to the business – and engage with those risks in line with the Vedanta risk management framework;
- develop an emergency response plan and test its effectiveness through both desktop evaluations and annual mock drills; and
- conduct and facilitate TMF audits according to the performance standard.

2018 PRE-AUDIT FINDINGS
BY GOLDER ASSOCIATES OF VEDANTA INDIA TMFs AND ASH PONDS

In late 2018, Golder undertook a comprehensive review of Vedanta's TMFs, and noted numerous instances of good practice.

RAMPURA AGUCHA

- Instrumentation (piezometers and embankment settlement monuments) installed
- Addition of more discharge locations (now seven and will add two more)

1


1


2

RAJPURA DARIBA COMPLEX

- Excellent freeboard and water management – construction of external return water pond
- Overall good construction quality and upgrading of tailings slurry transport and discharge lines plus starting to install piezometers (and one inclinometer) with automated data collection and web-based monitoring


2


3


3

TALWANDI SABO POWER LIMITED

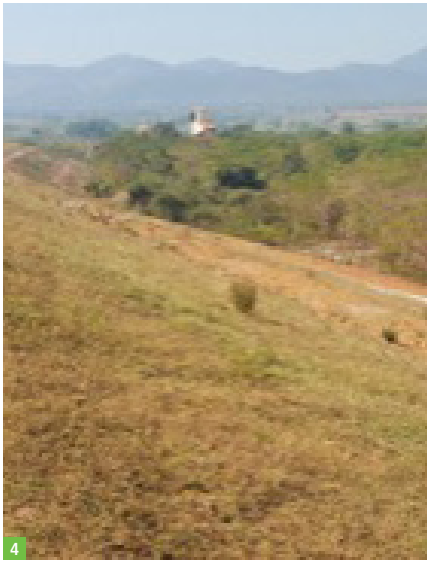
- Good monitoring documentation, adequate freeboard and with the inter-pond divider berm, a good plan for ash management and utilisation. Good ash utilisation plan and practice
- Installation of embankment piezometers and settlement monuments

3

LANJIGARH

- Remedial embankment buttressing continuing
- Adequate freeboard in the West Red Mud Pond (water storage pond that decants to the Process Water Lake)

4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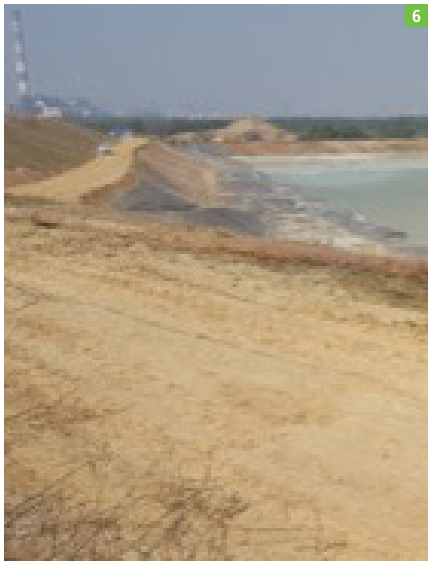
BALCO KORBA

- Improvement over November 2017 site visit – remedial design plans under construction and the embankments are being dewatered successfully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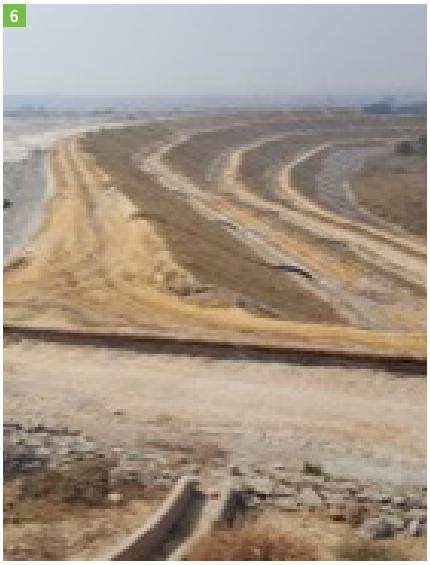
JHARSUGUDA

- Excellent documentation, quality remedial construction, and overall ash management. Lagoon 3, shown left with multiple deposition points from perimeter slurry line
- Successful rehabilitation and raising of Pond 1 is a testimony to the Jharsuguda Ash Team's efforts in stabilizing Lagoon 1 and developing capacity for future ash storage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STARTING FROM THE GROUND UP:

VEDANTA GAMSBERG'S WORLD-CLASS TMF

Gamsberg's has the largest high density polyethylene (HDPE)-lined TMF in South Africa and will accept 3.55Mt of tailings a year. It was named the Most Outstanding Geotechnical Project of 2018 by the South African Institute of Civil Engineers.

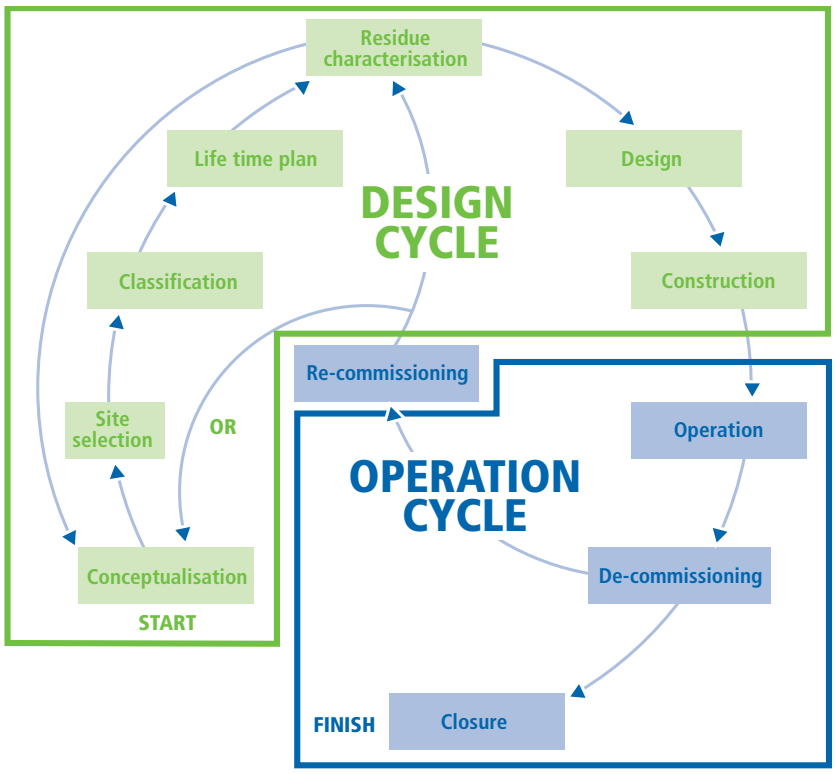
A number of best practices relating to design overview; location selection; geo-membrane selection; geotechnical/ hydrogeology investigations; deposition method: cyclone vs spiggot; storm water management; environmental management; stability analysis; digitalisation; closure planning and documentation were implemented from the start.

Given the sensitive environment in which Gamsberg operates, the various potential impacts of the TMF were given serious consideration. Especially important was protecting the groundwater. The TMF is fully lined with a 1.5mm HDPE liner to prevent any polluted water from reaching natural sources; and a continuous impermeable rock armour was constructed on the outside slope of the TMF to prevent clean rain water run-off being contaminated with tailings. This also helps to minimise the wind dispersion of the tailings.

In line with our overall digitisation drive at Gamsberg, a number of measures were implemented including:

- temperature probes underneath the liner to measure if the tailings become heat-generative; and
- wireless vibrating wire piezometers, delivering real-time water level data. Trigger levels are built in to give warning if the phreatic surface (the level below which the ground is completely saturated with water) rises above limits.

OVERALL PROJECT EXECUTION MODEL
Lifecycle framework for residue deposits



Gamsberg TMF

Lisheen, Ireland

CASE STUDY
Closure and rehabilitation at Lisheen

Lisheen Mine started a progressive rehabilitation programme in the early 2000s as part of its Closure, Rehabilitation & Aftercare Management Plan (CRAMP) which was fully approved by all regulatory authorities. The TMF rehabilitation works consisted of a 1m thick hybrid cap being placed over the tailings, with each element of the cap fulfilling a specific function. The first layer was a geotextile, followed by 700mm of limestone rock and then 300 to 400mm of soil, covered with grass to form a stable and sustainable surface. A system of spillways was installed to manage water on the facility. A certain amount of water is maintained within the rock cap, just above the elevation of the tailings, to make sure they are kept moist and will not oxidise to produce acid mine drainage.

Assurance

The TMF remains governed by the conditions of Lisheen Mine's Integrated Pollution Control Licence (IPCL) which requires ongoing monitoring and auditing of the facility into the future. An emergency plan has been developed and details the actions to be taken in the event of failure. A detailed aftercare programme has been developed for the Lisheen Mine and agreed with the Environmental Protection Agency (EPA). The plan is subject to annual review and the requirements may increase, depending on monitoring data or any other developments.

During its operation, the TMF was audited annually by competent engineers who were considered to be 'All Reservoir Panel Engineer' equivalent and this auditing remains a requirement of the aftercare plan. Scheduled monitoring is carried out to assess both the stability of the facility and the potential impact on the environment (surface and groundwater) and the results of this monitoring is submitted to the EPA at the required frequency.

The aftercare plan, as currently agreed, is fully funded and all monies are secured with signatures from both the company and the EPA required to make withdrawals.

TMF INCIDENTS AT VEDANTA

A TMF failure at Jharsuguda occurred in the 2017 monsoon. An excessive amount of rainwater had accumulated within the dam, causing destabilisation, a foundation failure and ultimately a progressive and rapid failure over an area in excess of 700 metres when the dam wall slipped on the ground surface and collapsed.

The same monsoon was responsible for another incident at Balco, when a 15m section of the dam overtopped, with tailings spilling beyond the bunded area. No substantial damage was caused, and the regulator did not issue notices.

In both cases the structural design was reviewed. At Jharsuguda there has been some major dam wall rebuilding. In addition, as a precaution, a large number of monitors and monuments were installed to measure hydraulic pressure and wall movement respectively. As a further precautionary measure, the TMFs across the group were maintained at the lowest possible water level with emergency contingencies in place to deal with the possibility of unprecedented rainfall levels.

A beneficial outcome was that Vedanta undertook a full, risk-based evaluation of 10 Indian operations, checking adherence to the 2017 Standard.

In 2018, our Indian operations reviewed their existing site-specific TMF Operations, Surveillance and Maintenance (OMS) Manuals using the 2017 Standard as a guideline. January 2019 saw pre-audit site visits at seven Indian operations, checking the progress of implementation against the OMS manuals. The visits also formed part of preparations for an upcoming audit in mid-2019.

Sustainable Tailings Addendum
Disclosure of Operating Details – October 2019

	Question	Explanation to answer questions	Jharsuguda					
			Location-1 Kurabega:			Location-2 Katikela:		
1	Tailing facility Name	Identify every facility and identify if there are multiple dams within the facility. Provide details of these within Q20	Pond 1	Pond 2	Pond 3	Lagoon 1	Lagoon 2	Lagoon 3
2	Location	Latitude / longitude coordinates	21°48'12.85"N 84°3'3.86"E	21°48'18.28"N 84°2'58.57"E	21°48'6.77"N 84°2'45.07"E	21°46'39.71"N 84°4'17.34"E	21°46'46.46"N 84°4'18.67"E	21°46'57.88"N 84°4'23.91"E
3	Ownerships	Owned and operated, subsidiary, JV	Owned & operated	Owned & operated	Owned & operated	Owned & operated	Owned & operated	Owned & operated
4	Status	Active, Inactive / C&M, Closed Closed means closure plan developed and approved by relevant local governing agency; key stakeholders were involved in its development; closure plan was fully implemented or in the process of being implemented. A facility is not closed until the closure plan is implemented	Inactive	Inactive	Active	Active	Inactive	Active
5	Date of Initial operation	Date	2008	2009	2010	2010	2012	2017
6	Is the dam currently operated or closed as per approved dam design	Yes / No. If "No", provide information in Q20	No	No	Yes	Yes	No	Yes
7	Raising method	Upstream, centre line, modified centre line, downstream, landform etc.	Upstream	Upstream	Upstream	Upstream	Upstream	Upstream
8	Current maximum height	Meters	38	38	37	27	28	16
9	Current tailing storage impoundment volume	Million m^3	1.55	1.86	1.86	3.72	2.0	1.12
10	Planned tailings impoundment volume in 5 years (January 2024)	Million m^3	1.55	1.86	1.86	3.72	2.0	0.6
11	Most recent independent expert review	Date Independent expert means a suitably qualified person or team external to operation which is not involved in design and construction of the tailings dam	July 2019	July 2019	July 2019	July 2019	July 2019	July 2019
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance, and/or closure	Means all necessary document available to make informed and substantiated decisions on the dam safety. More information can be provided in Q20	Yes	Yes	Yes	Yes	Yes	Yes
13	What is your hazard categorization of this facility, based on the consequence of failure		Category B	Category B	Category B	Category B	Category B	Category B
14	What guideline do you follow for the classification system		ANCOLD (2012) Guidelines 7. Consequence Category	ANCOLD (2012) Guidelines 7. Consequence Category	ANCOLD (2012) Guidelines 7. Consequence Category	ANCOLD (2012) Guidelines 7. Consequence Category	ANCOLD (2012) Guidelines 7. Consequence Category	ANCOLD (2012) Guidelines 7. Consequence Category
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 different firm)	Yes or no This question relates to stewardship of the facility. May depend on factors not tied to best practices. Include stability concerns (e.g. toe seepage, dam movement, overtopping, spill way failure, piping etc). Also, whether designed and reviewed mitigation actions been implemented. Additional information Q20.	No	No	No	No	Yes	No
16	Do you have internal / in house engineering specialist oversight of this facility? Or you have external engineering support for this purpose?	Answer may be "both"	External	External	External	External	External	External
17	Has formal analysis of the downstream impact on communities, ecosystem and critical instruction in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place	Yes or no If "yes" provide the date	No	No	No	Yes, July 2018	Yes, July 2018	Yes, July 2018
18	Is there (a) a closure plan in place for this dam (b) does it include long term monitoring	Answer both parts of this question Can be "Yes and yes"	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	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 or no	Yes	Yes	Yes	Yes	Yes	Yes
20	Any other relevant information and supporting documentation.	Note this may include links to annual report disclosures, further information in the public domain, guideline or reports etc.	Q-17 – No Formal impact analysis conducted but regular third-party review carried out ; latest as recent as July 2019	Q-17 – No Formal impact analysis conducted but regular third-party review carried out ; latest as recent as July 2019	Q-17 – No Formal impact analysis conducted but regular third-party review carried out ; latest as recent as July 2019	NA	Q15: The ash pond failed in Aug'2017 & currently not in use. An independent stability analysis was carried out in Jan 2018 and recommendations to improve stability were implemented. The stability of remaining portions of the pond have been improved from Jan'18 to Jan'19	NA

Sustainable Tailings Addendum
Disclosure of Operating Details – October 2019

	Question	Explanation to answer questions	BALCO							
1	Tailing facility Name	Identify every facility and identify if there are multiple dams within the facility. Provide details of these within Q20	Dyke-1	Dyke-2	Dyke-3A	Dyke-3B	Dyke-4	Dyke-5	Dyke-6	Dyke-7
2	Location	Latitude / longitude coordinates	22°24'18.0"N 82°43'30.0"E	22°24'25.2"N 82°43'40.8"E	22°24'36.0"N 82°44'09.6"E	22°24'32.4"N 82°43'55.2"E	22°24'36.0"N 82°44'24.0"E	22°24'43.2"N 82°44'49.2"E	22°24'46.8"N 82°44'24.0"E	22°24'50.4"N 82°44'09.6"E
3	Ownerships	Owned and operated, subsidiary, JV	Operated 50% owned	Operated 50% owned	Operated 50% owned	Operated 50% owned	Operated 50% owned	Operated 50% owned	Operated 50% owned	Operated 50% owned
4	Status	Active, Inactive / C&M, Closed Closed means closure plan developed and approved by relevant local governing agency; key stakeholders were involved in its development; closure plan was fully implemented or in the process of being implemented. A facility is not closed until the closure plan is implemented	Inactive	Active	Active	Active	Active	Active	Active	Active
5	Date of Initial operation	Date	2005	2005	2005	2005	2015	2015	2017	2005
6	Is the dam currently operated or closed as per approved dam design	Yes / No. If "No", provide information in Q20	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Raising method	Upstream, centre line, modified centre line, downstream, landform etc.	Upstream	Upstream and downstream	Upstream	Upstream	Upstream	Upstream	Upstream and downstream	Upstream
8	Current maximum height	Meters	15	22	22	22	22	20	23	22
9	Current tailing storage impoundment volume	Million m^3	12.8 combined							
10	Planned tailings impoundment volume in 5 years (January 2024)	Million m^3	14.8 combined							
11	Most recent independent expert review	Date Independent expert means a suitably qualified person or team external to operation which is not involved in design and construction of the tailings dam	Jun-19	Jun-19	Jun-19	Jun-19	Jun-19	Jun-19	Jun-19	Jun-19
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance, and/or closure	Means all necessary document available to make informed and substantiated decisions on the dam safety. More information can be provided in Q20	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	What is your hazard categorization of this facility, based on the consequence of failure		Category C	Category A	Category A	Category A	Category A	Category A	Category A	Category A
14	What guideline do you follow for the classification system		Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)	Anacold (2012) DES(2016) CDA(2013)
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 different firm)	Yes or no This question relates to stewardship of the facility. May depend on factors not tied to best practices. Include stability concerns (e.g. toe seepage, dam movement, overtopping, spill way failure, piping etc). Also, whether designed and reviewed mitigation actions been implemented. Additional information Q20.	No	No	No	No	No	No	Yes	No
16	Do you have internal / in house engineering specialist oversight of this facility? Or you have external engineering support for this purpose?	Answer may be "both"	External	External	External	External	External	External	External	External
17	Has formal analysis of the downstream impact on communities, ecosystem and critical instruction in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place	Yes or no If "yes" provide the date	No	Yes, May 2019	Yes, May 2019	Yes, May 2019	Yes, May 2019	Yes, May 2019	Yes, May 2019	Yes, May 2019
18	Is there (a) a closure plan in place for this dam (b) does it include long term monitoring	Answer both parts of this question Can be "Yes and yes"	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	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 or no	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	Any other relevant information and supporting documentation.	Note this may include links to annual report disclosures, further information in the public domain, guideline or reports etc.	Q-17 - The facility is inactive and does not have water on the top. Regularly inspected. and maintained as required.	NA	NA	NA	NA	NA	An overtopping occurred on 23-sept-17. The situation was recovered without short or long term harm.	NA

Sustainable Tailings Addendum
Disclosure of Operating Details – October 2019

	Question	Explanation to answer questions	Skorpion Zinc	Gamsberg	BMM	CMT	Lisheen	TSPL
1	Tailing facility Name	Identify every facility and identify if there are multiple dams within the facility. Provide details of these within Q20	Scorpion Zinc TSF	Gamsberg Zinc TSF	Black Mountain TSF	Princess Creek TSF	Lisheen Mine Tailing Dam	TSPL Ash dyke
2	Location	Latitude / longitude coordinates	29°47'35.9"S 16°35'19.7"E	29°11'27.5"S 18°56'46.3"E	29°15'40.2"S 18°47'52.0"E	42°06'04.7"S 145°30'47.9"E	52°44'54.8"N 7°40'04.3"E	29°54'03.1"N 75°12'36.0"E
3	Ownerships	Owned and operated, subsidiary, JV	Owned and operated	Owned and operated	Owned and operated	Owned and operated	Owned and operated	Owned and operated
4	Status	Active, Inactive / C&M, Closed Closed means closure plan developed and approved by relevant local governing agency; key stakeholders were involved in its development; closure plan was fully implemented or in the process of being implemented. A facility is not closed until the closure plan is implemented	Active	Active	Active	Inactive	Closed	Active
5	Date of Initial operation	Date	2003	2018	1979	1996	1999	2014
6	Is the dam currently operated or closed as per approved dam design	Yes / No. If "No", provide information in Q20	Yes	Yes	Yes	yes	Yes	Yes
7	Raising method	Upstream, centre line, modified centre line, downstream, landform etc.	Upstream	Upstream	Upstream	Downstream	Downstream	Upstream
8	Current maximum height	Meters	42	6*	68.3	52.5	15	7.5
9	Current tailing storage impoundment volume	Million m^3	17.8	1.6	32.1	25.7	6.3	3.4
10	Planned tailings impoundment volume in 5 years (January 2024)	Million m^3	19.4	15.9	37.1	33.3	6.3	6.4
11	Most recent independent expert review	Date Independent expert means a suitably qualified person or team external to operation which is not involved in design and construction of the tailings dam	September 2016	July 2019	July 2019	September 2019	December 2018	July 2019
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance, and/or closure	Means all necessary document available to make informed and substantiated decisions on the dam safety. More information can be provided in Q20	Yes	Yes	No	yes	Yes	Yes
13	What is your hazard categorization of this facility, based on the consequence of failure		Category B (Medium)	Category B (Medium)	Category C (Low)	Category A	Category A	Category C
14	What guideline do you follow for the classification system		DEAT guideline document on EIA Regulations (April 1998)	SANS 10286	SANS 10286	ANCOLD	European Directive 2006/21/EC - Directive on the management of waste from extractive industries.	ANCOLD (2012) & CDA (2013)
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 different firm)	Yes or no This question relates to stewardship of the facility. May depend on factors not tied to best practices. Include stability concerns (e.g. toe seepage, dam movement, overtopping, spill way failure, piping etc). Also, whether designed and reviewed mitigation actions been implemented. Additional information Q20.	No	No	No	No	No	No.
16	Do you have internal / in house engineering specialist oversight of this facility? Or you have external engineering support for this purpose?	Answer may be "both"	External	Both.	Both	External	External	Both
17	Has formal analysis of the downstream impact on communities, ecosystem and critical instruction in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place	Yes or no If "yes" provide the date	No	Yes 2017	Yes 2019	Yes 2015	Yes 2014	Yes 2019
18	Is there (a) a closure plan in place for this dam (b) does it include long term monitoring	Answer both parts of this question Can be "Yes and yes"	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	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 or no	No	Yes	Yes	Yes	Yes	Yes
20	Any other relevant information and supporting documentation.	Note this may include links to annual report disclosures, further information in the public domain, guideline or reports etc.	Q19: The facility is located in a very dry and arid area. Low moisture tailings is placed in the facility (Semi-dry stack)	Q7: First year downstream then 11 years upstream. Q8: Current height is 6m. Maximum design height is 44m. Q9: Design maximum volume is 34.5million m^3.	Q12: This facility is inspected half-yearly to provide assurance of facility stability. Yearly structural stability analysis is also conducted.		Q4: The Tailings Dam closed after the mine reached its end of life, with all extractable ore processed.	

Sustainable Tailings Addendum
Disclosure of Operating Details – October 2019

	Question	Explanation to answer questions	HZL - Agucha	HZL – Dariba	HZL - Zawar	HZL - Debari
1	Tailing facility Name	Identify every facility and identify if there are multiple dams within the facility. Provide details of these within Q20	RA Mines Tailing dam	HZL - RDM complex RDC Tailing dam	Zawar Tailing storage facility	Jarosite Pond III
2	Location	Latitude / longitude coordinates	25°50'53.5"N 74°44'25.7"E	24°57'58.7"N 74°08'51.0"E	24˚20'32.34" 73˚42'45.58"	24°35'40.9"N 73°49'24.1"E
3	Ownerships	Owned and operated, subsidiary, JV	Operated 65% owned	Operated 65% owned	Operated 65% owned	Operated 65% owned
4	Status	Active, Inactive / C&M, Closed Closed means closure plan developed and approved by relevant local governing agency; key stakeholders were involved in its development; closure plan was fully implemented or in the process of being implemented. A facility is not closed until the closure plan is implemented	Active	Active	Active	Active
5	Date of Initial operation	Date	1991	1982	1982	2001
6	Is the dam currently operated or closed as per approved dam design	Yes / No. If "No", provide information in Q20	Yes	Yes	Yes	Yes
7	Raising method	Upstream, centre line, modified centre line, downstream, landform etc.	Phase 1 to Phase 8 – Downstream, Phase 8 – Partly Upstream (600m)	Phase 1 to Phase 9 – Downstream and partially U/S , Phase 10 is under execution with D/S method	Phase 1 to 5 with D/S and phase 6 to 8 with Upstream	Upstream & Downstream
8	Current maximum height	Meters	51m (Constructed) 74m (Feasibility study conducted)	26	60	17
9	Current tailing storage impoundment volume	Million m^3	52	10	19.50	9.0
10	Planned tailings impoundment volume in 5 years (January 2024)	Million m^3	6.5	7.5	3.5	4.0
11	Most recent independent expert review	Date Independent expert means a suitably qualified person or team external to operation which is not involved in design and construction of the tailings dam	July 2019	July 2019	July 2019	September 2019
12	Do you have full and complete relevant engineering records including design, construction, operation, maintenance, and/or closure	Means all necessary document available to make informed and substantiated decisions on the dam safety. More information can be provided in Q20	Yes	Yes	Yes	Yes
13	What is your hazard categorization of this facility, based on the consequence of failure		Category A	Category A	Yet to be classified	Yet to be classified
14	What guideline do you follow for the classification system		ICOLD	ICOLD	ICOLD	HW rules 2016
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 different firm)	Yes or no This question relates to stewardship of the facility. May depend on factors not tied to best practices. Include stability concerns (e.g. toe seepage, dam movement, overtopping, spill way failure, piping etc). Also, whether designed and reviewed mitigation actions been implemented. Additional information Q20.	No	No	No	No
16	Do you have internal / in house engineering specialist oversight of this facility? Or you have external engineering support for this purpose?	Answer may be "both"	External	External	External	External
17	Has formal analysis of the downstream impact on communities, ecosystem and critical instruction in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place	Yes or no If "yes" provide the date	Yes, July 2017	Yes, August 2019	Yes, July 2019	Under Process
18	Is there (a) a closure plan in place for this dam (b) does it include long term monitoring	Answer both parts of this question Can be "Yes and yes"	a) Yes b) Yes	a) Yes b) Yes	a) Yes b) Yes	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 or no	Yes	Yes	Yes	Yes
20	Any other relevant information and supporting documentation.	NA	Q10: tailings volume reduced through consumption in underground mine paste fill	Q10: tailings volume reduced through consumption in underground mine paste fill	Q10: tailings volume reduced through consumption in underground mine paste fill	Q10: tailings volume reduced through consumption in underground mine paste fill