

Dam summary information sheet

Dam Summary Information Sheet



General Dam Information

Name of Dam	Dam ID Number	#
Peak Gold Mines Tailings Storage Facility (TSF)		385
Description/Purpose	<p>The TSF comprises a tailings storage area and a Decant Dam for water management. The design is for central deposition of thickened tailings via a mound to form a runoff shedding landform. The mound is contained by a perimeter embankment.</p> <p>Runoff water drains down the tailings beach to the perimeter embankment and perimeter drainage is directed to a low point in the south-west area, referred to as the decant area. Water is discharged via a gravity decant system to the Decant Dam located externally to the south and downstream of the tailings storage area.</p> <p>An emergency spillway is located adjacent to the decant area to discharge runoff from large rain events that exceed the capacity of the gravity decant. The Decant Dam is formed by a cross-valley embankment and includes an emergency spillway via a topographical saddle near the east abutment.</p> <p>The TSF provides containment of mine tailings and water. The mine tailings comprise finely milled rock particles that are typically smaller than 0.1 mm. The tailings and water contain low concentrations of cyanide and metals. Tailings is classified as Potentially Acid Forming.</p>	

Above the Safety Threshold	No
Owner	Peak Gold Mines Pty Ltd
Emergency Contact 1	0437 934 535 – Todd Whitla – Processing Manager
Emergency Contact 2	0437 261 420 – Gerard Lowe – Processing Superintendent
Emergency Contact 3	0447 654 576 – Angus Wyllie – General Manager Cobar Region
Location of Dam	8 km south-south-east of Cobar, NSW
River/Stream/Catchment	Head of ephemeral watercourse
Towns Impacted	No direct impact to towns
LGA's Impacted	Cobar Shire Council
Dam safety emergency alert levels and response	
White Alert The lowest level of dam safety emergency and is assigned for unusual incidents which have the potential to threaten the dam.	A large rain event is forecast. Refer Section 7 of the Dam Safety Emergency Plan for preparatory measures, communication protocols and post rain event inspections. <u>Or</u> An unusual event has occurred, including but not limited to a 'non-emergency' trigger as per the Critical Controls and TARPs register in Appendix D of the Dam Safety Emergency Plan. As per the register, response is typically further investigation and contact with Engineer of Record for advice on remedial measures.
Amber Alert The second highest level of dam safety emergency assigned when dam integrity is compromised.	An emergency trigger for imminent failure is reached, as per the Critical Controls and TARPs register in Appendix D of the Dam Safety Emergency Plan and the summary in Section 5 of the Dam Safety Emergency Plan. Refer emergency notification and action sequence in Section 10 of the Dam Safety Emergency Plan.
Red Alert The highest level of dam safety emergency assigned when the dam is failing, or failure is imminent.	Failure is occurring or has occurred. Refer emergency notification and action sequence in Section 10 of the Dam Safety Emergency Plan.
Alert complete/cancelled	Update site personnel and owner of Langton's Lease. Reopen access to TSF area and other access ways that traverse the inundation areas.

Downstream Communities and Consequences

Downstream Communities	Langton's Lease (5.5 km south-west of TSF, along runoff path) - Alister Ewan – 0428 253 182				
'Sunny Day' Failure (SDF) <i>[Floods caused by the unexpected failure of the dam that may happen at any time and may not involve a rainfall event - including Earthquakes]</i>	Post-flood assessment with pond on tailings surface from a 1 in 10,000 AEP, 24-hour duration rain event.				
Consequence Summary	Consequence Category Significant	Population at Risk (PAR) 0.15	Potential Loss of Life (PLL) 0.045	Number of Dwellings None in inundation zone	Flood Wave Depth and Travel Time Maximum flow depth of 0.2 m in area of station buildings (non-residential) at Langton's Lease, for Flood Day failure scenario. Travel time following embankment breach is about 45 minutes.
'Extreme Flood' event adopted for dam breach failure scenarios <i>[The extreme flood for the catchment, typically presented as with and without dam failure]</i>	Pond volume of 0.25 Mm ³ adopted for both Sunny Day and Flood Day dam breach failure scenarios, i.e., estimated runoff from a 1 in 10,000 AEP, 24-hour duration rain event. The Flood Day scenario considered background flooding from a 1 in 20,000 AEP, 30-minute duration rain event.				

Dam Characteristics and Hydrological Information

TSF embankment type	Upstream raised earthen embankment around tailings storage area	TSF emergency spillway type	Broad crested weir with reinforced concrete sill beam and rock armoured chute
Maximum embankment height	15 m	Spillway invert elevation	RL 268.2 m (268.2 m AHD)
Maximum tailings thickness	34 m	Spillway base width	20 m
Maximum TSF crest elevation	RL 288 m (288 m AHD) (at causeway plateau)	Spillway depth	1 m
Maximum TSF embankment crest elevation	RL 265 m (265 m AHD)	Spillway design criteria	1 in 10,000 AEP critical duration rain event 1 in 10 AEP wind for wave freeboard
TSF embankment crest width	5 m (minimum)	Spillway outflow capacity	25.7 m ³ /sec
TSF embankment crest length	3.2 km	Operational outlet	Reinforced concrete gravity decant chute, HDPE outfall pipe with outlet into Decant Dam
TSF embankment catchment area	80.5 ha (enclosed by perimeter embankment)		
Total TSF embankment and tailings fill volume	14.9 Mm ³ (predicted at end of Stage 5 – refer Section 4.4.3)		
Minimum operational freeboard	0.5 m		
Decant Dam embankment type	Earthen, cross-valley embankment	Decant Dam emergency spillway type	Broad crested weir, excavation into bedrock at topographical saddle
Maximum embankment height	5 m	Spillway invert elevation	RL 243.8 m
Maximum crest elevation	RL 245 m (245 m AHD)	Spillway base width	45 m
Embankment crest width	5 m	Spillway depth	1.2 m
Embankment crest length	540 m	Spillway design criteria	1 in 10,000 AEP critical duration rain event 1 in 10 AEP wind for wave freeboard
Decant Dam embankment catchment area	42.5 ha (123 ha for combined TSF and Decant Dam catchment)	Spillway outflow capacity	20.8 m ³ /sec
		Operational outlet	Pump out only

Warning and Monitoring Systems

Warning Systems	Manual system of alerts based on weather forecasts and daily and weekly inspections. Linked to the Critical Controls and Trigger Action Response Plans register.		
Monitoring Systems	<p><u>Instrumentation:</u> Vibrating wire piezometers with automatic measurement. Weekly review of data. Embankment displacement beacons with manual survey measurement. Seepage collection systems with manual monitoring.</p> <p><u>Inspections:</u> Daily and weekly inspections with focus on critical controls. Refer Section 10 of DSEP.</p>		
Notification Protocols	Refer Section 10 of DSEP.		
Bureau of Meteorology Warnings and Stream Gauges	Bureau Warning Gauges Cobar Weather Station (MO 048027)	Stream Gauges Not applicable.	
NSW SES Local Flood Emergency Sub Plan Name	Cobar Shire – Local Flood Emergency Sub Plan		

References

Tailings Storage Facility Dam Safety Emergency Plan. WSP document reference: PS207908-WSP-MEL-MNG-PLN-00011 Rev0, November 2024

Prepared By	David Accadia	Approved By	Todd Whitla
Position and company	Engineer of Record and Principal Engineer, WSP Australia Pty Ltd	Position and company	Peak Gold Mines Pty Ltd, Processing Manager
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