

# GEMCO

## TAILINGS FACILITY INFORMATION

### Tailings Storage Facility (TSF) Information Summary (GISTM Requirement 15.1 B1 & B5)

Groote Eylandt lies about 50 km from the Northern Territory mainland and the eastern coast of Arnhem Land, about 630 kilometres from Darwin. The island measures about 50 kilometres from east to west and 60 kilometres from north to south, with an area of approximately 2,326 km<sup>2</sup>. It is generally quite low-lying, with an average height above sea level of 15 metres, although Central Hill reaches an elevation of 219 metres. Groote Eylandt Mining Company (GEMCO) hold several mining and exploration leases located along the western and southern side of the island.



**Figure 1: Locality plan GEMCO operation and leases**

GEMCO has 10 TSFs) in various stages of operation. All facilities are located within the GEMCO Western Leases. Angurugu is the nearest township and is located less than one kilometre by direct line from the northern boundary of TSF11. A levee has been established on the border of the mining lease between TSF11 and the township.

GEMCO's TSFs are generally constructed of compacted lateritic overburden materials sourced on site. Construction has generally been well controlled with certifying engineering oversight, layered construction methods, and quality management processes employed.

The location of each facility is presented in Figure 2 and a description of the construction history is provided in the following sub-sections.

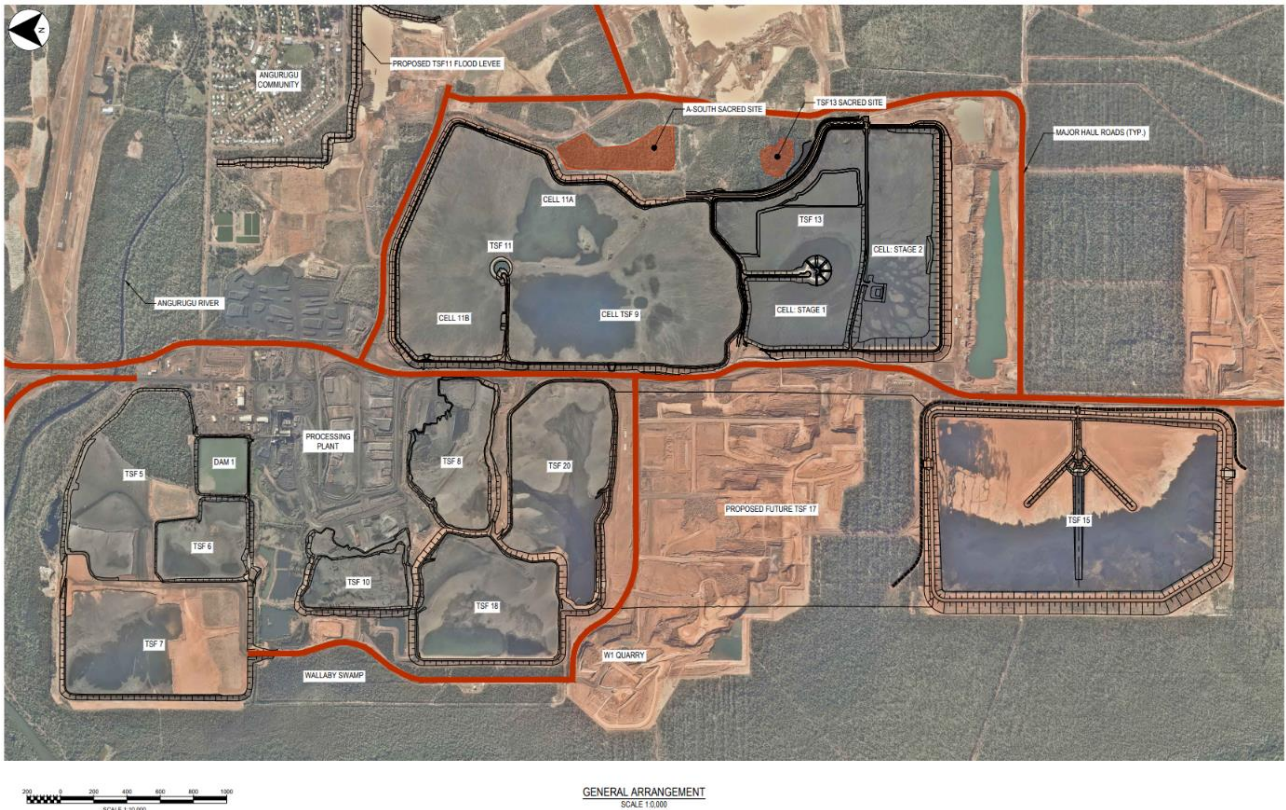


Figure 2: General Arrangement GEMCO TSFs

**TSF 5**

TSF 5 is an inactive TSF located to the north of the processing plant. This facility is the oldest slime and sands storage facility and in its present form is a result of the amalgamating of former TSFs 2, 2A, 3, 4, 5A and 5B. TSF 5 has a maximum embankment of 10m high and battered to between 1V:1.5 to 2.0H.

A summary of the TSF 5 construction history follows:

Description	Year	Method	Height (toe to crest) [m]	Reduced Level (RL) [m]
Starter Embankment (TSF 2)	1972-1974	-	Unknown	Unknown
TSF 2A (extension of TSF 2)	1974	-	Unknown	Unknown
TSFs 3, 4, 5A, 5B Starter Embankment	1975-79	-	Unknown	Unknown
TSFs 3, 4, 5A, 5B – Stage 1	1979	Downstream	~5m	13.5
TSFs 2, 2A, 3, 4, 5A and 5B (known as TSF 5)	1985	Downstream	~8m	15.0
TSF 5 inactive period (1989 – 2000)	Na	Na	Na	Na
TSF 5 lift	2000	Downstream	~10	17.0

Table 1: TSF 5 Construction History

**TSF 6**

TSF 6 is an inactive TSF located to the north of the processing plant. TSF 6 was historically used for slimes tailings storage. The perimeter embankments for TSF 6 are generally in the order of 10m high and battered at approximately 1 V:2.5 H.

A summary of the TSF6 construction history follows:

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment – partial	1985	-	Unknown	Unknown
Starter Embankment – completion	1999	-	~7m	14.0
TSF 6 raise	2005	Upstream	~10m	17.0

Table 2: TSF 6 Construction History

**TSF 7**

TSF 7 is an inactive TSF located to the north of the processing plant. TSF 7 was historically used for slimes tailings storage. The perimeter embankment for TSF 7 is generally in the order of 13m high and battered to between 1V:2.0 and 2.5H.

A summary of the TSF 7 construction history follows:

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment	1999	-	~10m	14.0
TSF 7 raise	2005	Downstream	~13m	17.0

Table 3: TSF 7 Construction History

**TSF 8**

TSF 8 is an inactive sands TSF located to the south of the processing plant. TSF 8 was constructed around the former E-Quarry. TSF 8 was historically used for sands tailings storage and ceased operation in January 2010 following a localised failure of the eastern embankment. TSF 8 shares embankments with TSF 18 and TSF 20.

The external embankments of TSF 8 are formed by coarse sand tailings stockpiles. The TSF 8 western embankments were initially constructed from dozer pushed overburden by the GEMCO Mining Fleet without engineering design or construction quality control. During construction of TSF 14 (now TSF 18) the shared embankment was excavated down to Reduced Level (RL) 15m and rebuilt with engineered fill.

**TSF 10**

TSF 10 is an inactive sand TSF located to the south of the processing plant. TSF 10 was constructed around a former quarry which was part of E-West Quarry. TSF 10 shares an embankment with TSF 18 in the south. The eastern embankment comprises an old sands tailings stockpile referred to as Mt Sekar. The western and northern embankments were constructed from compacted mine overburden material.

A summary of the TSF 10 construction history follows:

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment Eastern	~1970	Loose sand placement	-	-
Starter Embankment	2010	Downstream	~14	14-19.0
Western embankment Spillway upgrade	2016	Rock Infill	~14	13.3

Table 4: TSF 10 Construction History

**TSF 11**

TSF 11 is currently an inactive Slimes TSF comprising of TSF 9, 11a and 11b. TSF 9 was initially constructed during mid to late 2008. The final stage of TSF 11 was completed in October 2015. TSF 11 ceased operation in August 2021. The embankment comprised of compacted mine overburden material with a maximum embankment height of approximately 15m. Capping of TSF 11 with sand tailings commenced in 2023. TSF 11 is the closest facility to Angurugu township. A flood levee was constructed around Angurugu during the construction of TSF 11 as a mitigation measure for dam failure. The levee was later raised to provide a visual amenity barrier between the mining operations and the township.

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment (TSF9)	2009	Downstream	12	27
Starter Embankment (TSF11a)	2013	Downstream	10	25
Starter Embankment - TSF 11 stage 1 (TSF11b)	2014	Downstream	12	27
TSF 11 stage 2 (TSF11)	2015	Downstream	15	30
TSF 11 Eastern Berm	2017	Sand buttress	2	25.7
TSF 11 Angurugu Levee Wall	2014	Downstream	~3.5	~14.2-23
TSF 11 Angurugu Levee Wall – Raise	2018	Downstream	5	~15.7-24.5

**Table 5: TSF 11 Construction History**

**TSF 13**

TSF 13 is an active slimes TSF. TSF 13 was commissioned in 2018, perimeter embankments comprise of compacted mine overburden material with a maximum embankment height of approximately 15m. TSF 13 was constructed over two stages, Stage 1 was completed in September 2018, and then Stage 2/3 in August 2019. The TSF contains an emergency spillway, comprising a broad crested weir with rock lined downstream chute, seepage filter within the western embankment and a central decant pond with a decant ring.

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment Stage 1 (northern cell)	2018	Downstream	5	32
Starter Embankment Stage 2/3 (Southern cell)	2019	Downstream	13	32-33.25

**Table 6: TSF 13 Construction History**

**TSF 15**

TSF 15 was commissioned in 2022 and is currently operating as the primary active slimes storage facility. TSF 15 perimeter embankments are constructed from mine overburden, compacted by mine haul truck trafficking in the lower portions and compactor in the upper. The embankment batters are relatively flat between 1V:4H and 1V:6H which improve stability of the facility.

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment - Traffic compacted	2021	Downstream	12.5	21
Starter Embankment – Roller compacted	2021	Downstream	14.9	23.42

**Table 7: TSF 15 Construction History**

**TSF 18**

TSF 18 is an active sands TSF built over TSF 12 and TSF 14. Deposition commenced in TSF 12 in December 2012 and in TSF 14 in 2014. Construction of TSF 18 comprised an upstream raise along the eastern embankment of TSF 14 and was completed in late 2019. Embankments are typically zoned earth fill with a maximum height of approximately 17m. An emergency spillway, comprising a broad crested weir with rock lined downstream chute, is located on the western embankment. The decant pond forms against the western embankment which includes a downstream drainage blanket. Sands tailings from TSF 18 were have been used as capping fill for TSFs 5, 6 and 7.

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment – TSF12	2012	Downstream	16	9.5
Starter Embankment – TSF14	2014	Downstream	14	16-23
TSF18 raise	2017	Upstream	17	26

**Table 8: TSF 18 Construction History**

**TSF 20**

TSF 20 is an active sand TSF. TSF 20 is a downstream raise on TSF 16 including a realignment of the existing TSF 16 northern embankment and an upstream raise out onto the sands beach along the eastern embankment. An emergency spillway, comprising a broad crested weir with rock lined downstream chute, is located on the western portion of the southern embankment. The decant pond forms against the western and south-western embankments and includes chimney filters and downstream drainage blanket. Maximum embankment heights are 13m battered at approximately 1 V:3.0 H.

Description	Year	Method	Height (toe to crest) [m]	RL [m]
Starter Embankment – TSF16	2016	Downstream	4-15	12.89
Starter Embankment – TSF20	2021	Downstream	13	20-21.2

**Table 9: TSF 20 Construction History**