

Transitional Environmental Program:

MAN 17560

Periodic Report (1 June 2018)



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1 INTRODUCTION

This report addresses the conditions of transitional environmental program (TEP), Certificate of Approval TEP MAN 17560 issued 7 March 2014 and amendment TEP MAN 17560 issued 24 July 2017.

The initial TEP has eight (8) conditions is largely focused on quality of waters information and a requirement for 6-monthly reporting; the subsequent amendment TEP has three (3) conditions and is more focused on quantity data and has a requirement for quarterly reporting.

This report represents the quantity data for the period February to April 2018 inclusive (3 months).

2 PROJECT DESCRIPTION

2.1 Location

The Capricorn Copper Mine (CCM) is located approximately 120 kilometres northwest of Mt Isa in Northwest Queensland, in the Shire of Mt Isa near the former township of Gunpowder. The mining operations are located entirely on the Calton Hills pastoral lease, which is owned by the Kalkadoon Aboriginal Council. The residential facilities provided for employees and contractors, along with Lake Waggaboonya are located on a special use lease.

2.2 Environmental Authority

The CCM operates under Environmental Authority (EA) number EPML00911413 issued by the Department of Environment and Heritage Protection (EHP) on 1 November 2017 that authorises the carrying out of Environmentally Relevant Activities as defined in the Environmental Protection Act 1994. During the period of this report. The EA was amended on 19 September and 1 November 2017, however neither of these amendments relate to the requirements of this report.

2.3 Title and Tenements

Capricorn Copper Pty Limited holds 28 mining leases for CCM under the Minerals Resources Act 1989. The total land area covered by the leases is 912 hectares. Mining Lease renewal applications are pending for 7 MLs that expired on 31 March 2009.

In addition, three Mining Leases have been applied for south of, and directly adjoining, the current lease area. Application was made to accommodate the Esperanza Diversion, Upper Esperanza TSF and Esperanza South ancillary services. The construction of the Upper Esperanza Creek Diversion Dam has been allowed to proceed under a Land Use Agreement with the Calton Hills Board.

3 TEP MAN 17560 – CONDITIONS OF APPROVAL

This refers to only the TEP Amendment conditions which are the subject of this report – the initial TEP is subject to 6-monthly reporting.

3.1 Part 2 (Amendment) – Issued 24 July 2017

The TEP remains in force until 1 March 2019.

Table 1: Compliance Status of Conditions of Approval

NO.	CONDITION	CAPRICORN COPPER STATUS
1	The preferred rehabilitation strategies for the Old TSF and HELP #2 landforms must be consistent with best practice management in accordance with s21 of the Environmental Protection Act 1994. Reports on the preferred rehabilitation strategies must be provided to the administering authority by close of business on 1 March 2018. The reports must include, but not necessarily be limited to: - Technical feasibility, engineered designs and project implementation plans; - A description of the methodology and principles used to evaluate the preferred strategy; and - A description of how the preferred strategy is determined to be superior to alternative strategies and consistent with best practice management in accordance with s21 of the Environmental Protection Act 1994.	NB –HLEP #2 (Heap Leach Evaporation Pan #2) has been referred to as HELP #2 in previous documentation – HLEP is the correct abbreviation. Report was submitted to DES in accordance with an extension by 31 March 2018. TO date there has been no feedback from DES.
2	Reports on site water management must be provided to the administering authority detailing water management activities at the site. The reports must be provided on 1 September 2017 and quarterly thereafter and include: - Volume of water reduction through each method used on site (including evaporation, water treatment and internal use); - Maintenance log for the Minetek evaporators detailing operational use and down time for maintenance/repairs; - Volumes of water treated, and treated water use, associated with the refurbished water treatment plant; - Running totals, by month, including each method of water reduction, of the total volume of water reduced from the site; and - Site water volume inputs.	CCM submits this report in compliance with this condition. Refer to section 4 of this report.

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NO.	CONDITION	CAPRICORN COPPER STATUS
3	The works determined to be carried out in accordance with the report required under condition 1 must be implemented and completed by 1 March 2019.	Not yet applicable - CCM is working towards ensuring compliance with this condition.

4 ON SITE WATER MANAGEMENT

The water management strategy on site is focussed on minimising the volume of water that can make contact with potential contaminants through improved pumping systems and strategies, upgraded earth works and the controlled separation and capture of contaminated water.

Core to the current refurbishment and restart programs currently being undertaken on site is the redesign and upgrade of the water treatment plant to facilitate a new water treatment process. The intent is to treat the acidic mine water from the Esperanza Pit prior to pumping into the head of the copper concentrator.

The water treatment plant was commissioned on 25 October 2017. The Process Plant recommenced full operations in the latter half of November 2017.

4.1 Water Reduction

The water reduction methods undertaken site, and the volumes for the period of this report are shown in Table 2. Table 2 describes water reduction metrics for the period (previous month shown for comparison). Consumption of treated water for dust suppression on site roads commenced during March. Other alternatives are being considered to further use treated water.

Table 2: Site Water Metrics

		2017										2018	
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Rainfall	mm	7.27	0.00	0.00	0.00	0.00	24.20	83.00	6.00	37.00	114.1	242.50	0.00
Calculated impact of rainfall (based on area)	ML	1.83	0.00	0.00	0.00	0.00	6.29	21.74	1.57	9.69	29.89	63.52	0.00
Seepage and drainage to pit	ML	18.97	25.06	24.64	25.52	26.33	31.71	28.95	33.40	30.06	29.87	44.82	35.56
Tailings	ML	-	-	-	-	-	-	30.12	109.62	133.18	96.13	145.96	166.29
TOTAL INFLOWS	ML	20.80	25.06	24.64	25.52	26.33	38.00	80.80	144.59	172.93	155.89	254.30	201.85
Discharge to the environment	ML	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Evaporation (calculated - Pit and MCD)	ML	23.02	18.63	20.09	24.69	31.18	38.50	40.90	42.69	37.67	35.154	34.41	29.4
Forced Evaporation (mechanical evaporators)	ML	0.00	56.07	102.48	91.82	74.21	77.03	69.16	82.24	77.72	52.09	42.798	37.415
Treated Water Consumption	ML	-	-	-	-	-	-	-	-	-	-	8.24	33.51
TOTAL LOSS (Inflows - Reductions)	ML	-2.21	-49.64	-97.93	-90.99	-79.06	-77.53	-29.26	19.67	57.55	68.64	168.85	101.53
Pit level at end of month	m	213.33	213.12	212.68	212.20	211.68	211.05	210.99	211.37	212.06	213.06	216.38	215.96

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4.2 Evaporator Operations

As stated in section 4.1, the key method of water reduction on site during the period was evaporators at Esperanza Pit. Two evaporators were installed and commissioned in Q4, 2016 with an additional two evaporators installed and commissioned in June 2017. A total of four evaporators are in operation at the Esperanza Pit. Daily hours of operation versus pit volume (reductions) is shown in Figure 1.

Maintenance on the evaporators is undertaken through the preventative maintenance system on site and key tasks and activities and the schedule are shown in Table 3. During the period, all regular planned maintenance was undertaken in accordance with this schedule.

Figure 1: Evaporators – Daily Hours of Operation vs Pit Volume

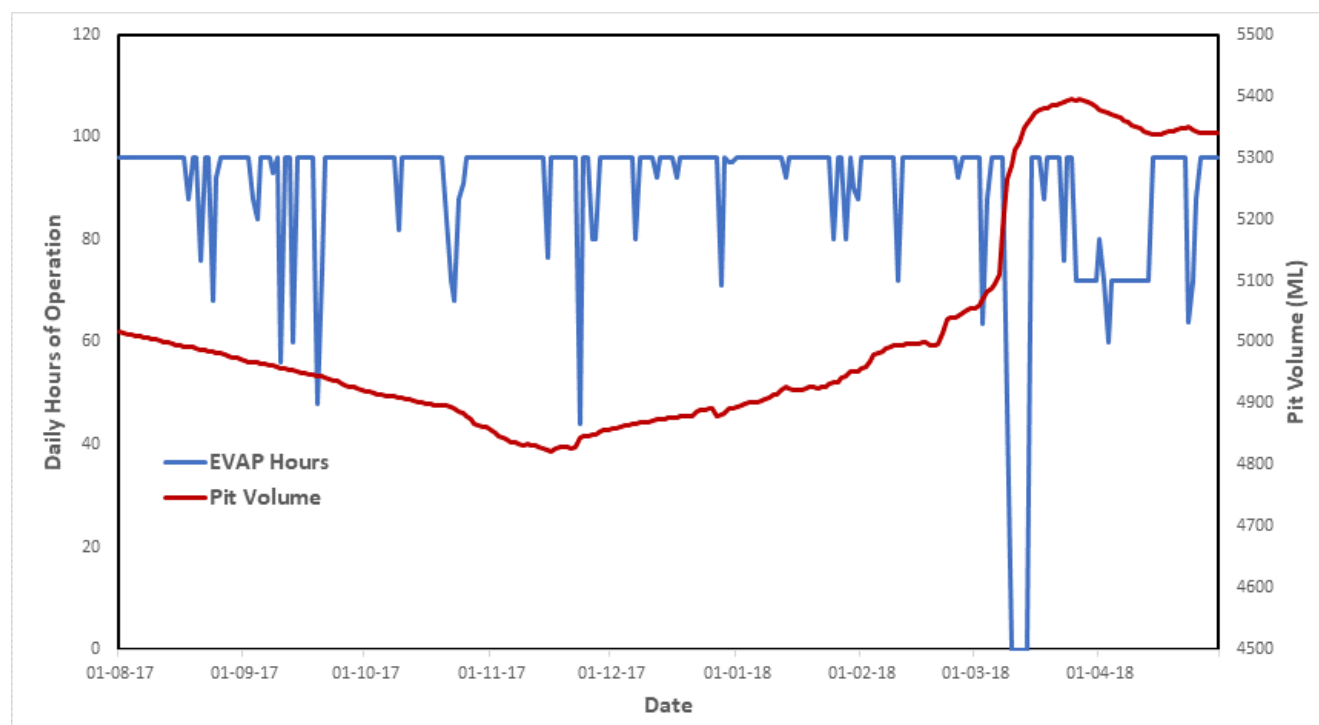


Table 3: Evaporator Preventative Maintenance Strategy

EQUIPMENT	ITEM	ACTIVITY	FREQUENCY
Evaporator	Ring	Clean	Fortnight
		Replace	Fortnight
		Repair	As Required
	Nozzle(s)	Clean	Fortnight
		Replace	As Required
	Body	Clean	Fortnight
	Motor	Clean	Fortnight
	Starter Panel	Clean	Fortnight
Main Pumps	Wet End	Repair	As Required
		Replace	As Required
	Motor	Repair	As Required
		Replace	As Required
Booster Pump	Wet End	Repair	As Required
		Replace	As Required
	Motor	Repair	As Required
Pipework	Valves	Repair	As Required
	Flange	Repair	As Required
	Suction	Move, relocate	Monthly
MCC	PLC/Control System	Reprogram/Optimise	As Required

5 TEP ACTION PLAN

In accordance with Section 331(b) of the Environmental Protection Act (1994), the action plan for the TEP MAN 17560 is presented in Table 4.

Table 4: TEP Action Plan

TEP OBJECTIVE	ACTION	DESCRIPTION	STATUS	DUE DATE
1. Prevent unauthorised contaminant release from Old TSF area to GP Creek	1-6, 16	Management of Old TSF from a final closure perspective to cease seepage through the facility.		
1a. Cease surface seepage expression downstream of Old TSF	1	Removal of equipment hardstand (including old gen-set), which may have induced consolidation.	Complete (May 2014)	Complete
	2	Associated earthworks to ensure surface of Mammoth TSF cannot pool water.	Complete (September 2015)	Complete
	3	Improve drainage to shed water and no external catchment. Including interception of any surface run-off from the Concentrate Shed.	Replaced with Condition 1 and 3 of TEP amendment issued 24/07/2017.	Complete
1b. Define and implement an appropriate final landform and cover design for Old TSF	4	Develop "Old TSF Final Landform and Cover Design" including engineering drawing to construction specifications for cover.	Replaced with Condition 1 of TEP amendment issued 24/07/2017.	Complete
	5	Physical earthworks required to execute Old TSF - Final Landform and Cover Design report, including construction of a cover if so recommended.	Due date deferred to 1 March 2019 pursuant to TEP amendment MAN17560	Deferred
1c. Interim management of Old TSF seepage	6	Continuation of the sump 6 seepage interception & monitoring system.	Sep-15 TEP Report: <i>Sump 6 seepage recover system was upgraded to include a secondary contingency pump and alarm. Continue to operate the system for seepage recovery.</i> Ongoing.	Ongoing - Term of the TEP
1d. Investigate and define the preferred rehabilitation management strategy for the old TSF	16	Evaluation of Preferred Rehabilitation Strategy for the Old TSF Landform report (prior to commencement Item 5). This includes completion and delivery of the technical feasibility, engineered designs and project implementation plans for the chosen rehabilitation strategy.	Submitted to DES 31/03/2018 – no feedback to date.	Complete
2. Return to compliance with water quality contaminant limits of Table C-4 for Magazine Creek.	7-11, 17	Remediate known point sources for contaminant inflows, resulting in a return to compliance of surface flows.		
2a. Remediate all known point sources of contaminant generation impacting Magazine and Greenstone Cr.	7	Decommission the Heap Leach Evaporation Pan #2 (HLEP), by undertaking associated earthworks to ensure surface of HLEP#2 cannot pool water.	Due date deferred to 1 March 2019 pursuant to TEP amendment MAN17560	Deferred
	8	Develop "HLEP #2 Final Landform and Cover Design" including engineering drawings to construction specifications for cover.	Replaced with Condition 1 of TEP amendment issued 24/07/2017.	Complete
	9	Physical earthworks required to execute HLEP#2 - Final Landform and Cover Design report, including construction of a cover if so recommended.	Due date deferred to 1 March 2019 pursuant to TEP amendment MAN17560	Deferred

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TEP OBJECTIVE	ACTION	DESCRIPTION	STATUS	DUE DATE
	9a	If as an outcome of item 17, an alternative strategy to item 9 is adopted, or if the mechanism by which item 9 construction of a final landform differs to options previously described by item 4 – complete all capital programs or plant upgrades required to implement the recommended rehabilitation strategy	Addressed upon completion of Action #17 - Alternative strategy not proposed.	Complete.
	9b	If as an outcome of item 17, an alternative rehabilitation strategy to landform cover is recommended for the HLEP #2 – execute final engineered designs and project implementation plans for the adopted rehabilitation strategy (or strategies)	Addressed upon completion of Action #17 - Alternative strategy not proposed.	Complete
	17	Evaluation of the Preferred Rehabilitation strategy for the HLEP #2 Landform report (prior to commencing Action #9). This includes completion and delivery of the technical feasibility, engineered designs and project implementation plans for the chosen rehabilitation strategy.	Submitted to DES 31/03/2018	Complete
2b. Investigate if any additional point sources of contamination.	10	Continue the monitoring program Stage 1 - existing monitoring program (water quality at Mammoth Portal, HLEP#2, WC03, sediment transect along Magazine Cr) and monitoring of accumulated contaminated soil in Magazine Creek by annual sediment sampling (before end of July each year - 1st qtr. of dry season). Stage 2 - additional investigation sampling if required.	Noted in Sep-15 TEP Report: <i>Sediment monitoring: completed as per EA</i> <i>Surface waters: completed as per EA</i> <i>Ground waters: completed as per EA</i> Monitoring programs ongoing as per TEP and EA.	Term of the TEP
2c. Minimise risk of contaminated flows occurring past Mammoth Portal Sump	11	Capture contaminated water before it reports to Greenstone Creek (prior to completion of actions 7-9).	Additional sump installed at junction of east and west Magazine Creeks. COMPLETE	Complete
3. Return to compliance with water quality contaminant limits of Table C-4 for Gunpowder Creek.	12-15 and 18-21	Reduction of the sulphate and metal contamination load entering Gunpowder Creek to a point whereby no exceedances of receiving water contamination limits occurs (EA Table C4).		
3a. Improved Esperanza TSF seepage management	12	Operation of the Esperanza TSF in accordance with the EA condition G9-1 "Esperanza TSF Master Seepage Report"	Esperanza TSF not in operation for discharge of tailings – however surface area being utilised to facilitate evaporation post wet season with transfer of pit water. No seepage detected.	-
	13	Continuous operation of North Waste Rock Dump, Saddle Dam #2 & Saddle Dam #3 seepage pump systems	Noted in Sep-15 TEP Report: <i>In compliance and operating the seepage system at SD2 and SD3 as and when seepage occurs.</i> <i>General trend of decreasing seepage rates has been observed.</i> Ongoing.	Term of the TEP

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TEP OBJECTIVE	ACTION	DESCRIPTION	STATUS	DUE DATE
3b. Ensure that discharge does not unnecessarily increase sulphate load in Gunpowder Creek at beginning of dry season.	14	Discharge in accordance with Court Order #3267 of 2013 (i.e. when creek flowing >1.1m ³ /s for sufficient dilution and movement)	Not applicable during the period of this report – no discharges	Term of the TEP or Court Order
3c. Reduce groundwater and soils contamination (from Sump 6), to reduce the contamination load entering Gunpowder Creek.	15	Annual scalping of visually evident seepage induced efflorescence in the area known as Sump 6 (immediately downstream of Old TSF)	Completed in September 2017 – not applicable for the term of this periodic report, however post 2017/18 wet season some clean-up was undertaken.	31 October each year if required
3d. Improve the water management, treatment and reduction for contaminated water retained on site.	18	Install and commission 4 Minetex high capacity evaporators with the capability of evaporating 450 ML of water per year per unit	Completed 30/06/2017	Complete
	19	Refurbish and commission the water treatment plant with a capacity to treat 1.6GL of water per annum (requires 1.1GL of water to be fed to meet operational consumption)	Commissioned 25 October 2017	Complete
	20	Reduce volume of existing contaminated water retained on site through: a. Evaporation (4 units at 80% utilisation and 50% of design capacity and efficiency = 60ML per month for 19 months) b. Water treatment and consumption (80% pf 40ML per month excess capacity = 34ML per month for 19 months). Total reduction for water by 1 March = 1.8GL.	In progress	01/03/2019
	21	Develop a rehabilitation plan for Mill Creek Dam and incorporate it into the Plan of Operations and Post Mine Land Use Plan.	In progress.	01/03/2019

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