ENDEAVOR OPERATIONS PTY LTD

ENDEAVOR MINE

MONTHLY ENVIRONMENTAL REPORT

AUGUST 2022

Name of Operation	Endeavor Mine
Name of Licensee	Endeavor Operations Pty Ltd
Environmental Protection Licence	No: 1301
Reporting Period Start Date	1 August 2022
Reporting End Date	31 August 2022

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1 INTRODUCTION

We at Endeavor Mine conduct systematic and periodic environmental monitoring of our operations to substantiate the effectiveness of our environmental controls which are in place to protect the environment, the health of our workers, our neighbours and the greater community. The results in this report correspond to August **2022**. This report publishes the summary of the environmental monitoring carried during this month for dust deposition, tailings deposition and groundwater. All monitoring is conducted in accordance with regulatory requirements and the EOPL Annual Environmental Monitoring Plan. Samples are collected and handled in accordance and compliance with regulatory requirements and taken to laboratories accredited by the National Association of Testing Authorities (NATA) for analysis.

2 MONITORING RESULTS

2.1 Dust Monitoring

Air quality aspects and impacts associated with site operations are managed in accordance with the Air Quality Management Plan (END-PLN-ENV-006) and the requirement detailed in NSW Environmental Protection Licence 1301.

The Endeavor Mine is located 47 km from the nearest town (Cobar) and 4.5 km away for its nearest sensitive receptor (residential property). Therefore, dust deposition at these potential receptors is considered a low environmental risk.

Nevertheless, dust deposition on and beyond the boundary of the lease has the potential to cause environmental harm. Therefore Endeavor Mine manages airborne contaminants on site through the use of water sprays and a water trucks with depositional dust monitoring stations strategically located along the boundary of ML158/159/160/161 to measure performance.

Figure 2.1 Dust monitoring gauge located in the project

2.1.1 Dust Monitoring Methodology and Limits

The Endeavor Mine Dust Monitoring Program measures dust deposition rates on a monthly basis at the main mining lease boundary (4 locations) and at a background location located 11km from the operating mine site (DDG 5 – Point ID 5). EP Licence 1301 does not set limits for dust deposition. However, these results are compared to the recommended limits outlined in *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW 2016*. This guidance document recommends that the deposition rate for total insoluble matter when expressed as a 12 month rolling average should not exceed 4 g/m^2/month and that site activities should not generate dust emissions which result in a dust deposition rate greater than 2 g/m^2/month above background levels on a annual average. Table 2-1 describes the Pollutant, Units of Measure, Monitoring Frequency and Method of Sampling.

2.1.2 Monitoring Locations

Table 2-1 Endeavor Mine Air Monitoring Requirements

Point ID	Pollutant	Unit of measure	Frequency	Sampling Method
1 (DDG1)	Particulates - Deposited matter	grams per square metre per month	Monthly	AM-19
2 (DDG2)	Particulates - Deposited matter	grams per square metre per month	Monthly	AM-19
3 (DDG3)	Particulates - Deposited matter	grams per square metre per month	Monthly	AM-19
4 (DDG4)	Particulates - Deposited matter	grams per square metre per month	Monthly	AM-19
5 (DDG5)	Particulates - Deposited matter	grams per square metre per month	Monthly	AM-19

As shown in the satellite image (Figure 2.2), there are 5 dust monitoring locations on the boundary of the lease, with one located 11kms from the site at the turnoff to the Mine site near the Louth Road. This station was positioned to establish background levels.

Figure 2.2 Endeavor Mine Dust Monitoring Locations

2.1.3 Dust Monitoring Data

This report shows the results from the dust monitoring activities carried out during the month of August 2022 (Table 2-2). All values remain well under the recommended guidance values, DDG4 shows higher values than usual due to the sample being contaminated with insects.

Table 2-2 Dust monitoring results August 2022.

Monitoring locations (Monitoring from 13/07/2022 to 13/08/2022						
Parameters	**Unit**	**DDG1**	**DDG2**	**DDG3**	**DDG4**	**DDG5**
Total soluble matter	g/m2*month	0.4	0.3	0.1	1.3	0.2
Total insoluble matter	g/m2*month	0.5	0.4	0.4	0.1	0.4

2.2 Groundwater Monitoring

Deep regional groundwater flows to the south west, conforming to the structural dip of the underlying sedimentary rocks. Groundwater inflow into the mine is observed at a depth range of between 60 to 80 m below ground surface. A shallow, perched aquifer occurs is found in the vicinity of the Central Tailings Discharge CTD between approximately 0.5 to 13 m below ground surface. This aquifer is recharged by rainfall and seepage water from the operational TSF via a permeable gravelly soil layer in the area.

A review of groundwater characteristics undertaken by consultants Environmental Earth Sciences (EES) in 2013 indicates there is no interface between the shallow perched water and the deep regional aquifer.

Groundwater quality at the mine is generally poor due to the high salinity. The water has been sampled by NSW Water Conservation and Irrigation for the original Environmental Impact Statement (EIS) could be considered "brackish" and was found to have an electrical conductivity (EC) of 26,000 µS/cm (sea water is approximately 30,000 us/cm). Further, it was noted that the water was not suitable for stock, domestic or farm use. Potential contamination of the groundwater would be of low risk due to the naturally poor quality of the water.

2.2.1 Monitoring Locations

Endeavor Mine's groundwater monitoring locations are concentrated around the perimeter of the Central Tailings Discharge (CTD) and the Sector 5 Tailings Storage Facility (CTF), while surface water monitoring locations are focused on water storages that could potentially discharge to environment during a major rain or storm event. Table 2-3 describes the monitoring stations, where Figure 2.3 shows the locations of the piezometers. Depending on availability of water or flow, unfortunately on some occasions, piezometers cannot be monitored as a result of being dry. Parameters to be monitored are described in

Table 2-4.

Table 2-3 EPA Monitoring Stations

EPA ID	Type of monitoring point	Location description
9	Groundwater monitoring point	PZ Labeled as BH02
10	Groundwater monitoring point	PZ Labeled as BH02B
11	Groundwater monitoring point	PZ Labeled as BH03
12	Groundwater monitoring point	PZ Labeled as BH06
13	Groundwater monitoring point	PZ Labeled as BH08A
14	Groundwater monitoring point	PZ Labeled as BH09
15	Groundwater monitoring point	PZ Labeled as BH10
16	Groundwater monitoring point	PZ Labeled as BH10B
17	Groundwater monitoring point	PZ Labeled as BH12B
18	Groundwater monitoring point	PZ Labeled as BH14
19	Groundwater monitoring point	PZ Labeled as BH15
20	Groundwater monitoring point	PZ Labeled as BH16
25	Groundwater monitoring point	PZ Labeled as BH13

Table 2-4 EPA Monitoring Parameters

Pollutant	Unit of measure	Frequency	Sampling method
Arsenic	milligrams per litre	Quarterly	Representative sample
Cadmium	milligrams per litre	Quarterly	Representative sample
Calcium	milligrams per litre	Quarterly	Representative sample
Chloride	milligrams per litre	Quarterly	Representative sample
Copper	milligrams per litre	Quarterly	Representative sample
Cyanide (total)	milligrams per litre	Quarterly	Representative sample
Electrical conductivity	milligrams per litre	Quarterly	Representative sample
Iron	milligrams per litre	Quarterly	Representative sample
Lead	milligrams per litre	Quarterly	Representative sample
Magnesium	milligrams per litre	Quarterly	Representative sample
Manganese	milligrams per litre	Quarterly	Representative sample
Mercury	milligrams per litre	Quarterly	Representative sample
pH	pH	Quarterly	Representative sample
Potassium	milligrams per litre	Quarterly	Representative sample
Sodium	milligrams per litre	Quarterly	Representative sample
Standing water level	metres	Quarterly	Representative sample
Sulfate	milligrams per litre	Quarterly	Representative sample
Total dissolved solids	milligrams per litre	Quarterly	Representative sample
Zinc	milligrams per litre	Quarterly	Representative sample

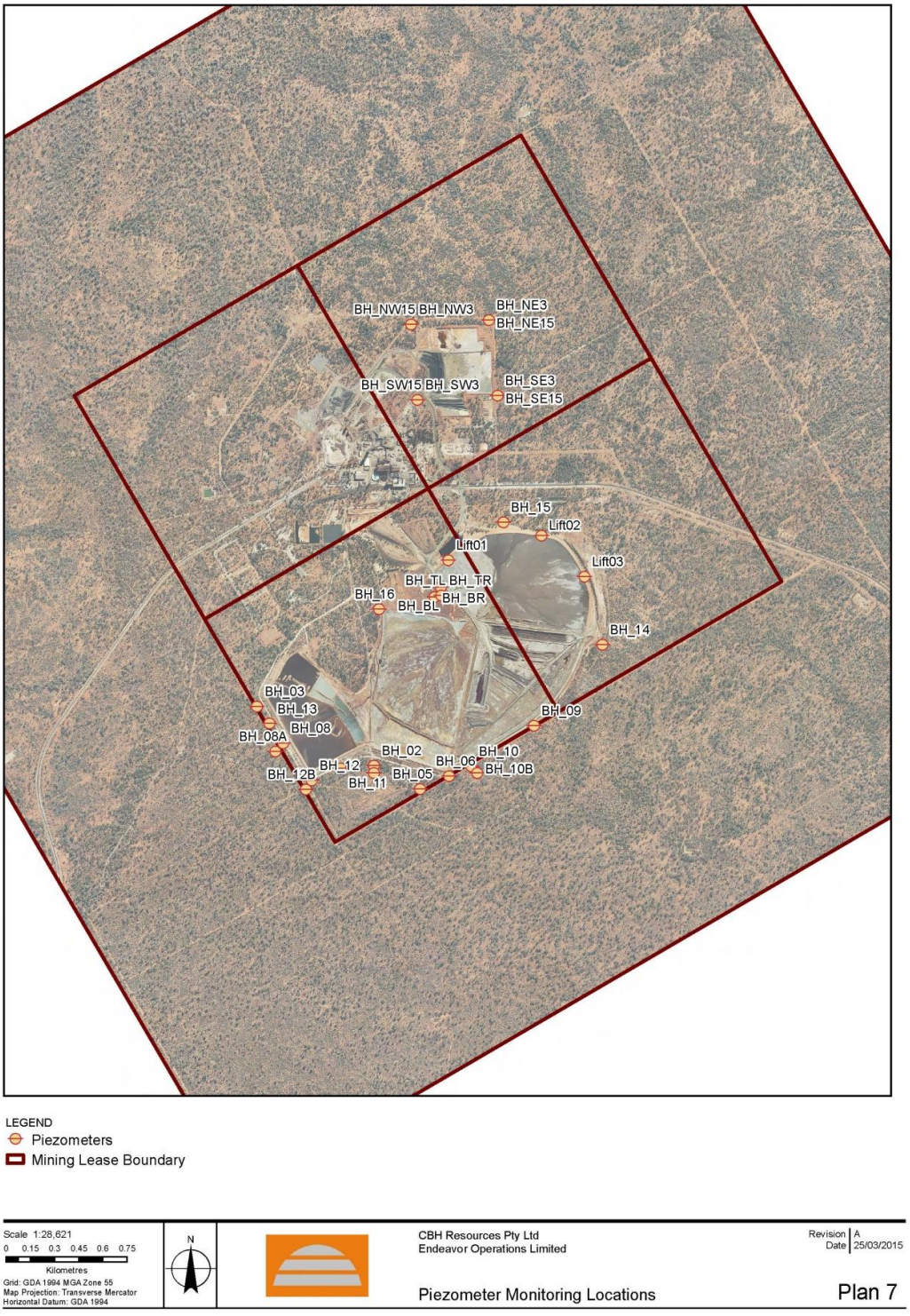

Figure 2.3 Location of the Piezometer Monitoring Locations

2.2.2 Monitoring Results Data

Groundwater monitoring was carried out 11-12 August 2022, the results are in **Error! Reference source not found.**.

Table 2-5 Groundwater Monitoring Results August 2022

Monitoring Locations (EPA ID)			BH 02	BH 02B	BH 03B	BH 03	BH 06	BH 08A	BH 09	BH 10	BH 10B	BH 12B	BH 13B	BH 13	BH 16
			9	10	11	12	13	14	16	17	18	19	25	24	20
Standing Water Levels (m)			2.25	3.2	3.91	2.05	3.81	4.33	5.4	5.11	5.6	5.11	2.94	2.16	3.07
pH Value	Lab	pH Unit	7.03	7.22	7.26	6.99	6.32	7.34	7.41	7.68	7.53	7.26	7.27	6.85	6.61
Elect. Cond.	Lab	µS/cm	16700	18800	32000	33000	16100	29700	20600	30700	22700	26000	29700	29400	29700
Temp	Field	C	24.6	25.3	24.3	26	24.9	25.6	25.1	23.4	25.7	26.4	25.2	24.1	26.9
Total Dissolved Solids @180Â°C		mg/L	14800	16800	27900	28400	17800	24800	20500	25700	24600	22100	26200	29400	23000
Sulfate as SO4 -		mg/L	6930	7830	6900	7180	9100	6250	9500	9800	11300	5680	6550	6470	5200
Chloride		mg/L	2650	3040	7660	7860	1490	7130	2800	5850	3120	6160	7160	7060	7970
Calcium		mg/L	685	730	756	736	564	723	659	540	605	703	718	699	789
Magnesium		mg/L	1450	1860	1950	2190	1700	1580	1570	1040	2150	1240	1710	1750	1070
Sodium		mg/L	1700	1930	4490	4190	1390	4160	2740	5650	2830	3570	3970	3820	4280
Potassium		mg/L	108	93	192	178	92	180	241	229	215	211	167	146	111
Arsenic		mg/L	0.282	0.095	0.005	0.011	1.62	0.003	0.010	0.046	0.008	0.007	0.002	0.025	0.005
Cadmium		mg/L	<0.0001	<0.0001	0.001	<0.0001	<0.0024	0.0001	0.0002	0.0053	<0.0001	<0.0001	<0.0001	<0.0001	0.0040
Copper		mg/L	<0.001	<0.001	0.007	<0.001	0.002	0.001	<0.003	0.002	0.004	0.002	0.001	<0.001	<0.001
Lead		mg/L	<0.001	0.001	0.014	<0.001	<0.010	0.001	<0.034	1.02	0.010	0.003	0.002	0.009	0.007
Manganese		mg/L	10.8	7.79	3.14	8.42	27.1	7.46	3.19	0.101	1.13	4.63	16.6	13.5	36.0
Zinc		mg/L	<0.005	0.076	9.66	0.005	19.4	1.32	<0.078	2.66	0.033	0.026	0.039	0.023	36.0
Iron		mg/L	3.57	<0.05	0.32	2.25	422	<0.05	<0.05	1.57	0.14	0.31	0.85	16.3	38.0
Mercury		mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Cyanide		mg/L	<0.004	<0.00 4	<0.004	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004

2.3 Tailings Deposition

Tailings (also known as tails or residue) are the material left over after the process of separating the valuable fraction from the uneconomic fraction (waste) of the ore. Tailings are distinct from overburden or waste rock or other material that overlies an ore or mineral body and is displaced during mining without being processed.

The volumes of tailings can be large and require an engineered storage and capacity to safely house them, Depending on the nature of the ore or the type of extraction process, tailings can have the potential to harm the environment unless they are deposited and managed correctly.

The reporting of monthly tailings deposition is a legislative requirement as part of EPL 1301.

2.3.1 Tailings Deposition: Data and Discussion

From the 1st of January 2020 the Mine has entered into Care and Maintenance, no tailings have been produced as there are no ongoing operations.

Table 2-6 Tailings Deposition for August 2022

	Environment Protection Licence Monitoring Point 7		**Environment Protection Licence Monitoring Point 8**		**TOTAL**
	Volume of tailings deposited (m^3)	Mass of tailing solids deposited (DMT)	Volume of tailings deposited (KL)	Mass of tailing solids deposited (DMT)	Mass of tailing solids deposited (DMT) YTD
August 2022	-	-	-	-	**-**

3 RESULTS LOG

Table 3-1 Laboratory results log

Samples	Results received from laboratory
Dust deposition	August 2022
Groundwater	August 2022
Date report posted on website	August 2022

4 COMPLAINTS HOTLINE

Endeavor Mine has established a complaints hotline for members of the Public to voice any concerns they have with Endeavor Mine activities. The phone number to call is (02) 68306555 or email on enquiries@endeavor.com.au. Endeavor will investigate any complaint and take immediate action if the complaint is validated.