



ENDEAVOR OPERATIONS PTY LTD

# ENDEAVOR MINE



## MONTHLY ENVIRONMENTAL REPORT

For the Month Ending 31 March 2018

Name of Operation	Endeavor Mine
Name of Licensee	Endeavor Operations Pty Ltd
Environmental Protection Licence	No: 1301
Reporting Period Start Date	1 March 2018
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## Monthly Environmental Report

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### 1 INTRODUCTION

We at Endeavor Mine conduct periodic environmental monitoring 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. Welcome to the March 2018 Environmental Monitoring Report.

This report has also been produced to satisfy our reporting obligations under the Protection of the Environment Operations Act 1997 (POEO Act) and EP Licence 1301 which requires for Endeavor Mine to publish or make pollution monitoring data available to members of the public. The report provides a summary of monthly environmental monitoring results for March 2018.

Endeavor's environmental monitoring program includes the monitoring of contaminants to air, surface water and ground water at locations within or beyond mine site boundary. The program also involves the monitoring of noise (when required), the deposition of tailings and reporting of resources as raw water usage.

Samples are periodically 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. The Report also compares the results against established internal and external targets and provides critical discussion on environmental issues and sustainability initiatives during the monitoring period



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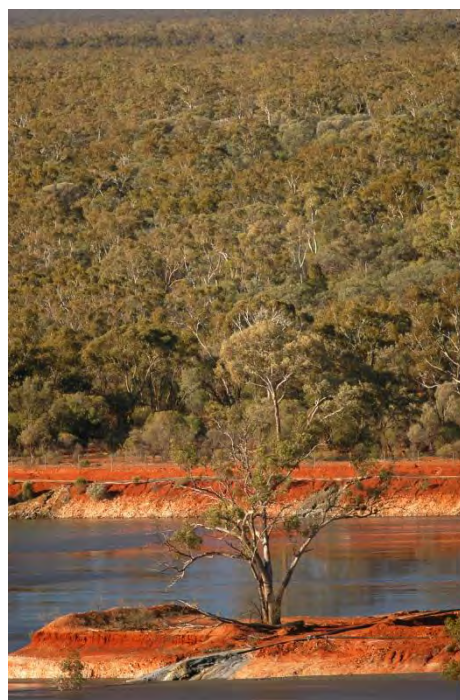
### 1 Meteorology

The following section presents historical and current weather data for Cobar and the surrounding Shire.

#### 1.1 Temperature and Humidity

##### History

*Cobar has a semi-arid climate with hot summers and cool to mild winters. Winter nights can be quite cold. Average monthly maximum temperatures tend to range from 13C to 20C in winter to between 28C to 39C in summer. Average monthly minimum temperatures range from 2C to 8C in winter to 14C to 24C in summer. The humidity in Cobar is low. During the summer the average relative humidity is about 30% in the afternoon and about 50% at 9am. In winter it is about 45% at 3pm, whilst it is about 75% at 9am.*



##### 1.1.1 Meteorological Data for March 2018

The average temperature for the Cobar region for March 2018 was 28°C with average-low humidity and stable barometric pressure. Table 1 shows the high and low weather summary.

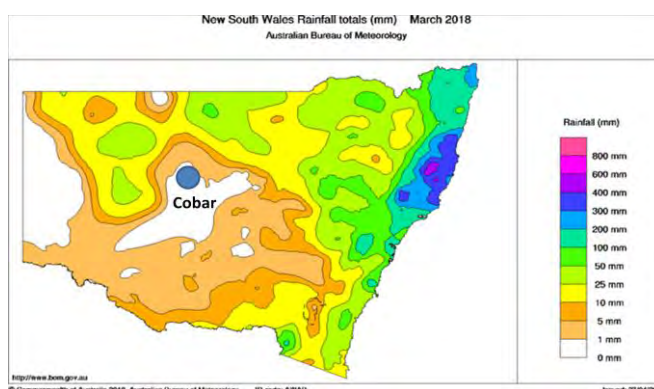
Table 1: High and Low Weather Summary for March 2018

	Temperature	Humidity	Pressure
High	39°C (27 Mar, 6:00 pm)	100% (21 Mar, 3:00 pm)	1020 mbar(21 Mar, 3.00 pm)
Low	9°C (31 Mar, 7:00 am)	9% (12 Feb, 3:00 pm)	1008 mbar (12 Mar, 6:00 am)
Average	26.7 C	46%	1012 mbar

## 1.2 Rainfall

### History

On average, rainfall in the Cobar region tends to be uniformly distributed throughout the year, with a median annual rainfall of 390-400mm. The average monthly rainfall is 33mm. The mean evaporation rate for the region is 1953mm – 6 times the annual rainfall. The rainfall is however extremely variable, and this is particularly so in late summer and early spring when the highest observed falls have been in excess of 200mm in any one month. This results in the average monthly rainfall being greatly in excess of the median monthly rainfall for some months. In January, February and April, for example, the average rainfall is more than double the median rainfall.



### 1.3 Rainfall for March 2018

There was no rainfall in Cobar and surrounding areas during March 2018. YTD rainfall is shown in Table 2.

Table 2: YTD Rainfall for Cobar, NSW

January 2018	February 2018	March 2018	YTD
6.2mm	0.2mm	0.0mm	6.4mm



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### 1.4 Wind

#### History

*The predominant wind direction for the Cobar region is East or North East, but will come from the North occasionally West during the hotter periods. Wind can play a critical role in a site's environmental performance, particularly with dust deposition and noise depending on wind direction.*



#### 1.4.1 Wind Data

Winds shifted during March 2018 with the predominant direction from the South South West (SSW) switching occasionally to the SSE. However some Easterly winds were experienced and were responsible recorded the highest wind gusts for the month. The highest wind gust recorded was 61km/h on the 22<sup>nd</sup>.

## 2 Monitoring Requirements

#### The Importance of Monitoring

*Increasingly, mining companies are coming under pressure to improve their environmental, social and financial performance. The challenges stem from fluctuating stakeholder demands and shifting commodity prices. To many, keeping production costs down is a top priority to ensure profit margin are maintained. But it is much more than that.*

*Endeavor Mine has found by implementing more accurate and efficient environmental monitoring as part of their operational culture and practices, it has produced significant and positive impacts on overall performance. By truly understanding what is happening across the operation, more informed and sustainable decisions can be made about the business.*



### 3 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 requirements detailed in NSW EP Licence 1301.*

*The Endeavor Mine is located 47km from the nearest town (Cobar) and 4.5km away from its nearest sensitive receptor (residential property). Therefore, dust deposition at these potential sensitive 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.*



#### 3.1 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. EP Licence 1301 does not set limits for dust deposition. The results are however assessed against the recommended limits outlined in *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW 2005*. 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<sup>2</sup>/month and that site activities should not generate dust emissions which result in a dust deposition rate greater than 2 g/m<sup>2</sup>/month above background levels. Table 3 describes the Pollutant, Units of Measure, Monitoring Frequency and Method of Sampling.



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### POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

### POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

### POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

### POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

### POINT 5

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

Table 3: Endeavor Mine Air Monitoring Requirements

## 3.2 Monitoring Locations

As show in the aerial photo (Figure 1), 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.

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Figure 1: Dust Monitoring Locations

### 3.3 Dust Monitoring Results for March 2018

Table 4 shows the results of Monitoring for March 2018.

Monitoring Location		DG1	DG2	DG3	DG4	DG5
Date Sampled		16/04/2018	16/04/2018	16/04/2018	16/04/2018	16/04/2018
EG020F: Dissolved Metals by ICP-MS	Unit	mg/L	mg/L	mg/L	mg/L	mg/L
Lead	7439-92-1	0.007	0.003	0.007	<0.003	<0.001
	Unit	g/m <sup>2</sup> month	g/m <sup>2</sup> month	g/m <sup>2</sup> month	g/m <sup>2</sup> month	g/m <sup>2</sup> month
Total Insoluble Matter		1.0	0.9	0.9	1.2	1.1

Table 4: Dust Monitoring Results for March 2018

### 3.4 Discussion

As shown in Table 4 the results for Total Insoluble Matter (TIM) were low and did not exceed the limit of 4 g/m<sup>2</sup>/month as set in the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW 2005*. Pb levels were also low and within establish guidelines.

## **4 Groundwater Monitoring**

### **Deep and Shallow Aquifers**

*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 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.*

### **Ground Water Quality**

*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  $\mu\text{S}/\text{cm}$  (sea water is approximately 30,000  $\mu\text{S}/\text{cm}$ ). 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.*



### **4.1 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 5 describes the monitoring stations where Figure 2 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.

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Table 5: EPA Monitoring Stations

9	Groundwater monitoring Point	Piezometer labelled as "BH02" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
10	Groundwater Monitoring Point	Piezometer labelled as "BH02B" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
11	Groundwater Monitoring Point	Piezometer labelled as "BH03" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
12	Groundwater Monitoring Point	Piezometer labelled as "BH06" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
13	Groundwater Monitoring Point	Piezometer labelled as "BH08A" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
14	Groundwater Monitoring Point	Piezometer labelled as "BH09" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
15	Groundwater Monitoring Point	Piezometer labelled as "BH10" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
16	Groundwater Monitoring Point	Piezometer labelled as "BH10B" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
17	Groundwater Monitoring Point	Piezometer labelled as "BH12B" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
18	Groundwater Monitoring Point	Piezometer labelled as "BH14" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).



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Table 5: EPA Monitoring Stations

19	Groundwater Monitoring Point	Piezometer labelled as "BH15" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
20	Groundwater Monitoring Point	Piezometer labelled as "BH16" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14 (DOC14/317060).
25	Groundwater Monitoring	Piezometer labelled as "BH13" on map titled "Statutory Groundwater Monitoring Locations" received by the EPA on 12/12/14.



Figure 2: Location of the Piezometer Monitoring Locations

## 4.2 Groundwater Monitoring Results

Table 6 details the groundwater monitoring results for the first quarter 2018. Some locations could not be sampled due to lack of water and recharge.

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Table 6: Groundwater Monitoring Results: March 2018												
Date of Sampling		14/03/18	14/03/18	14/03/18	13/03/18	15/03/18	15/03/18	14/03/18	13/03/18	15/03/18	15/03/18	15/03/18
Monitoring Locations		EPA 9	EPA 10	EPA 12	EPA 13	EPA 14	EPA 15	EPA 16	EPA 17	EPA 18	EPA 19	EPA 20
Analyte Grouping/Analyte	Units											
Standing Water Levels	Metres	3.14	3.80	2.85	5.501	3.39	9.17	5.38	10.295	5.66	9.39	3.611
pH Value	pH Unit	7.6	7.55	6.29	7.77	7.81	8.03	7.85	7.72	7.89	7.96	7.07
Electrical Conductivity @ 25Â°C	ÂµS/cm	15500	17400	16500	27800	18500	27000	19100	25400	16500	22800	19400
Total Dissolved Solids	mg/L	13900	16800	18700	16200	19200	23500	17900	19200	17800	24100	16100
Total Alkalinity as CaCO3	mg/L	981	984	144	933	721	958	848	802	636	933	179
Sulfate as SO4	mg/L	5310	5540	8690	4220	5980	6150	6380	4050	5750	7000	3720
Chloride	mg/L	2820	3380	2210	7350	2940	5450	3130	6540	2720	4050	5400
Calcium	mg/L	642	586	562	767	572	329	594	682	541	570	760
Magnesium	mg/L	938	1060	1430	938	1420	689	1410	850	1500	1780	648
Sodium	mg/L	1640	2150	1750	3990	2360	5200	2640	3850	1790	3030	2700
Potassium	mg/L	107	112	92	164	236	214	188	230	144	158	97
Aluminium	mg/L	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	0.084	0.069	2.22	0.004	0.013	0.019	0.008	0.006	0.008	0.005	0.003

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Table 6: Groundwater Monitoring Results: March 2018												
Date of Sampling		14/03/18	14/03/18	14/03/18	13/03/18	15/03/18	15/03/18	14/03/18	13/03/18	15/03/18	15/03/18	15/03/18
Monitoring Locations		EPA 9	EPA 10	EPA 12	EPA 13	EPA 14	EPA 15	EPA 16	EPA 17	EPA 18	EPA 19	EPA 20
Analyte Grouping/Analyte	Units											
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0041	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001
Copper	mg/L	<0.001	0.002	<0.001	0.005	0.001	0.004	0.002	0.002	0.003	0.002	<0.001
Lead	mg/L	<0.001	0.003	<0.001	0.002	0.083	0.081	<0.001	<0.001	0.006	0.02	<0.001
Manganese	mg/L	10.1	4.88	9.43	5.81	5.02	0.105	2.99	0.064	0.556	0.065	25.6
Nickel	mg/L	0.007	0.031	0.109	0.009	0.049	0.005	0.018	0.007	0.009	0.008	0.04
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	0.019	0.026	0.17	0.048	0.083	1.96	0.023	0.027	0.037	0.059	0.526
Iron	mg/L	2.64	<0.05	465	0.17	0.53	0.15	0.86	<0.05	<0.05	0.05	22.5
Mercury	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0002	0.0001	<0.0001
Total Cyanide	mg/L	<0.004	<0.004	0.017	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004

### **4.3 Monitoring Results Discussion**

#### ***Brackish Groundwater***

As previously mentioned in this report, the groundwater quality in the vicinity of the Endeavor Mine is naturally poor. pH is elevated, high EC and contains elevated TDS, Cl, Mg which is consistent with elevated elements consistent with seawater. It could be considered brackish and unsafe to drink or use for agricultural or stock use. Although quantitative definitions of this term vary, it is generally understood that brackish groundwater is water that has greater dissolved-solids content than occurs in freshwater, but not as much as seawater (35,000 milligrams per litre). As shown in Table 6, this is the case for the groundwater at Endeavor. It is considered be brackish if the source has dissolved-solids concentration between 1,000 and 10,000 milligrams per liter (mg/L). The term "saline" commonly refers to any water having dissolved-solids concentration greater than 1,000 mg/L and includes the brackish concentration range.

#### **Seepage**

Based on the results shown in Table 6, there appears to be no evidence of leachate in groundwater from both the CTD and the Sector 5 TSF. As shown in the meteorological data, the region has received very little to no rainfall during 2018.

Groundwater levels around Sector 5 could not be measured due to the lack of water or flow. Based on a review of pH, EC and the absence of high levels of dissolved metals, there appears to no signs of any environmental harm caused at both storage facilities and show and no signs of leaching into either the shallow or deep aquifers. It is expected that during the next quarter, that rainfall in the region may provide improved recharge of the aquifers and further monitoring opportunities will provide more representative samples.

## 5 Surface Water

### History

*Surface water is categorised in two the following categories:*

**Clean Water:** *Water that has not been degraded by contact with mine operations and is of a suitable quality for release to the off lease receiving environment. Clean water includes: Raw Water, Potable Water, and Clean Stormwater.*

**Contaminated Water:** *Water containing potential contaminants or pollutants and not fit for discharge, water that has had contact mining and ore processing operations. Contaminated water includes: Process Water, Tailings Supernatant, Mine Water, and Contaminated Stormwater.*



### 5.1 Monitoring Methodology

Although not part of the legislative commitments, Endeavor monitors surface waters on the lease as part of its internal and operational commitment. The main surface water monitoring point is the Evaporation Pond which is measured monthly (Volumes and pH) and biannually along with all other site dams for pH, electrical conductivity (EC), total dissolved solids (TDS), Cations (Ca, Mg, Na, K, ionic balance), Anions (SO<sub>4</sub>, Cl, alkalinity, flouride), Cyanide (total) and dissolved metals (As, Cd, Cr, Cu, Pb, Ni, Mn, Zn, Al, Fe, Se, Hg). The first Bi-annual monitoring of surface waters is due in May 2018.

### 5.2 Monitoring Locations

Figure 3 shows the location of the surface water dams on site that are monitored for water quality bi-annually.



Figure 3: The Endeavor Mine: Main Water Storages

### 5.3 Results

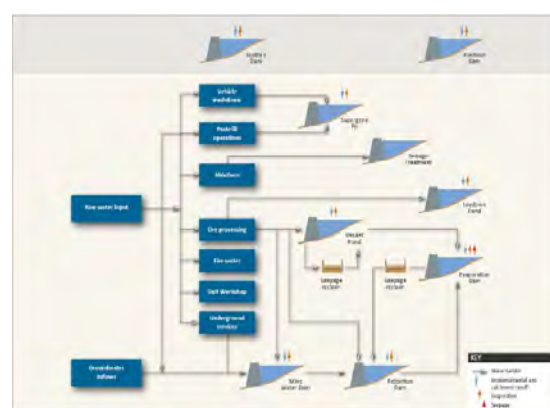
No surface sampling was undertaken during March 2018. Water sampling will be undertaken as part of the Bi-Annual monitoring in May 2108. Weekly measurement of pH has been undertaken at the Evaporation Pond and the results remained consistent and stable. Due to the current dry conditions and distinct lack of rainfall, it was decided to hold the next round of surface sampling as part of the Bi-Annual monitoring in May.

## 6 Raw Water Usage

### History

The Cobar Water Board supplies raw water to the Endeavor Mine via a pipeline along the rail corridor. This water is sourced from Burrendong Dam (right) via a system of open channels, weirs and pipelines. Endeavor Mine currently holds a high security license for 1,280 ML per annum, with average usage being 58,000KL per month. Supply of this water is controlled by the Cobar Water Board. The licensed volume of water is generally sufficient to support mining operations. If required, an above allocation water purchase can be made through the CWB depending on the level of drought and/or water restrictions placed on the area.

Raw water is reticulated across site for use as make up water for the Retention Dam (process water) and for “clean water” uses such as vehicle and equipment wash down and dust suppression. Raw water is initially stored in 5ML holding tank from where it is distributed to either: the raw water system, the potable water treatment plant or the fire water reticulation system.



### 6.1 Monitoring Methodology

Joint readings by personnel from Endeavor Mine Environmental Department and the Cobar Shire Council are conducted monthly.

### 6.2 Results

Table 7 shows the date of reading, year to date usage as well as usage for March 2018.

Table 7: Raw Water Use for March 2018

Date	YTD (KL)	Usage (KL) for March 2018
31/03/2018	186219	72236



## **7 Noise Management**

*Environmental noise is the propagation of noise with harmful impact on the activity of human or animal life. According to the World Health Organization, sound levels less than 70 dB are not damaging to living organisms, regardless of how long or consistent the exposure is. Exposure for more than 8 hours to constant noise beyond 85 dB is deemed hazardous. A “Nuisance” Noise is a noteworthy and unreasonable amount of sound from neighbouring premises.*



Endeavor Operations has never received a noise complaint from its neighbours. The closest sensitive receptor (neighbouring property) is Poon Boon, which is located 4.5 kms away from operations and has never reported a complaint for either noise or dust. The predominant wind direction is from the east to north-east, therefore; the greatest potential noise risk is for ‘Bundella’, 11.8 km from the mine. Again, no complaints have been registered.

### **7.1 Noise and Vibration Assessment**

If a noise complaint is registered, Endeavor Mine will identify the acoustic values where a potential source is emanating as well as determine background levels at the nearest sensitive receptor (nearest Property).

Acoustic values to be measured and considered include:

- Health and biodiversity of ecosystems;
- Human health and wellbeing, including ensuring a suitable acoustic environment for individuals to sleep, study or learn, and be involved in recreation, including relaxation and conversation; and
- The amenity of the community.

The noise and vibration assessment will involve the identification of a baseline noise environment, modelling of potential noise sources and assessment of potential impacts associated with the operation. Any impact assessment will be based on likely sources including indicative operating equipment.



### 7.1.1 Neighbours (Sensitive Receptor)

A sensitive receptor is considered to be a location in the vicinity of the operation, where noise may affect the amenity of the land use.

### 7.1.2 Noise Management Plan

Based on the results of the assessment, a noise management plan is in place to address how plan activities will be carried out, according to best practice noise management principles.

Best-practice noise management principles include:

- Noise impact assessments and emission calculations;
- Administration of activities;
- Stakeholder engagement;
- Adoption of noise attenuating technologies for plant and equipment (if practicable);
- Minimising background creep; and
- Containing and minimising variable noise;

### 7.2 Monitoring Locations

Potential Monitoring locations will include neighbouring properties. Figure 4 shows the location of the neighbouring properties.



Figure 4: Closest Neighbours to Endeavor Mine

### 7.3 Noise Monitoring Results for March 2018

No noise complaints were registered during March 2018. The Noise Management Action Plan was not activated. Year to date, Endeavor Mine has received no complaints regarding noise or any other nuisance issue.

## 8 Waste Management

*Endeavor Mine has developed and implemented a Waste Management Plan to provide a framework for managing process and non-process wastes, both liquid and solid, excluding waste rock, overburden and tailings. Detailed internal procedures are used to support both the operation and maintenance of the waste. The primary objectives are to:*

- *Reduce potential health and environmental risks associated with waste generation and disposal;*
- *Promote the efficient use and conservation of resources, reduce the need for waste treatment facilities and reduce the requirement for raw materials;*
- *Minimise the use of hazardous materials and seek safer alternative materials where possible; and*
- *Comply with statutory requirements, specifically the conditions set out in Environmental Protection Licence 1301 and site Mining Leases and other statutory requirements.*



As stated in EP1301, Endeavor Mine “*must not cause, permit or allow any waste to be received at the premises, except the wastes expressly meeting the definition as stated in its License*”. Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the Table 8 below. Any waste received at Endeavor Mine is subject to the limits or conditions listed in Table 8.

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Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

Table 8: Requirements for the Storage and Handling of Waste under EP 1301.

## 9 Tailings Deposition

### History

*Tailings (also known as “tails” or “residue” is the material left over after the process of separating the valuable fraction from the uneconomic fraction (waste) of ore. Tailings are distinct from overburden, which is the 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 required engineered storage and capacity to safely house them. Depending on the nature of the ore or the type of chemicals used in the 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 EP 1301.

### 9.1 Results

Table 9 shows the volumes of tailings deposited for March 2018. All tailings were deposited in Sector 4.

	Environment Protection Licence Monitoring Point 7		Environment Protection Licence Monitoring Point 8	
	Volume of tailings deposited (KL)	Mass of tailing solids deposited (DMT)	Volume of tailings deposited (KL)	Mass of tailing solids deposited (DMT)
March 2018	71857	47582	0	0

Table 9: Tailings Deposition for March 2018

### 10 Rehabilitation and Research

*As the majority of the site will remain active for the life of the mine, only limited progressive rehabilitation is possible. However extensive planning and trials into the rehabilitation of facilities such as the tailings dams are ongoing. A current ongoing trial located on Pit 8 at Sector 5 TSF (right) is measuring the impact on soils as a use in capping of tails. The trial measures:*

- *Matric suction;*
- *Soil temperature;*
- *Volumetric water content; and*
- *Electrical conductivity.*

*There are two other significant projects in progress:*

- *Grass Pod Trials; and*
- *Contaminated land (Grass Plot) trials.*



### 11 Complaints Hotline

Endeavor Mine has established a complaints hotline for members of the Public to voice any concerns they may have with Endeavor Mine activities. The phone number to call is (02) 68306475 or email on [enquiries@endeavor.com.au](mailto:enquiries@endeavor.com.au). The number can be called 24 hours a day / 7 days a week. Endeavor will investigate any complaint and take immediate action if the complaint is validated.