



# Environmental Review Committee Meeting No. 101

PERIOD: 1 JANUARY TO 31 MARCH 2020

## COVID\_19

Ballarat Gold Mine has moved quickly to implement a wide range of stringent measures to reduce the risk of COVID-19 among its workforce and local communities, and to keep its operations up and running.

The COVID-19 lockdown has also raised some challenges with how we communicate directly with our neighbours. Letter drops are now more difficult and face to face meetings are not allowed.

Phone calls and emails will be always welcome.



Shawn Li, Director and Leigh Searle, Health & Safety Manager. 3000 face masks were donated to Ballarat Base Hospital



## MINING ACTIVITY

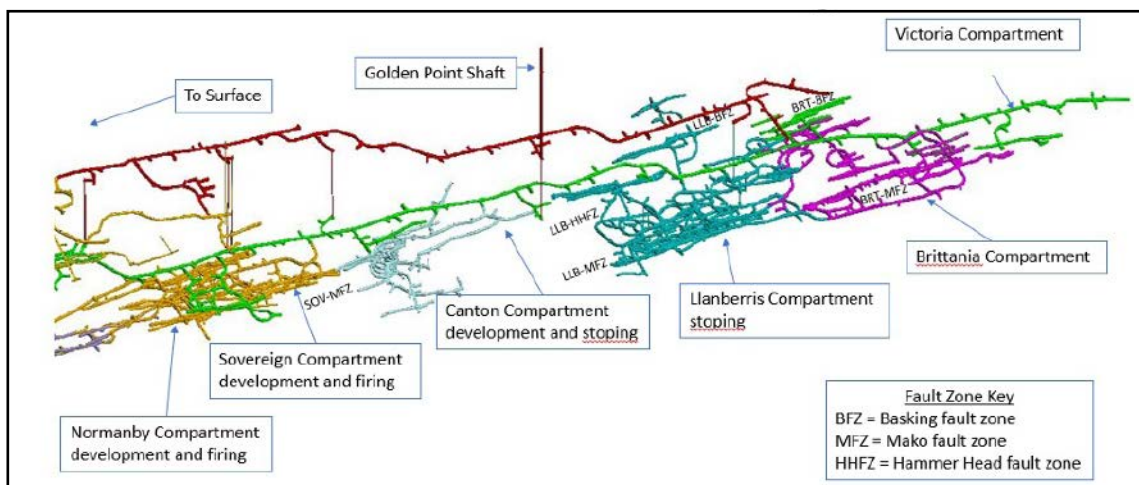


Figure 1. Location of Ballarat Gold Mine's Mining Areas - Image looking North West

All monitoring results for the quarter were well under the maximum day time vibration limit of 10 mm/sec and Ballarat Gold Mine's annual limit of 95% of all firings to be less than 5 mm/sec.



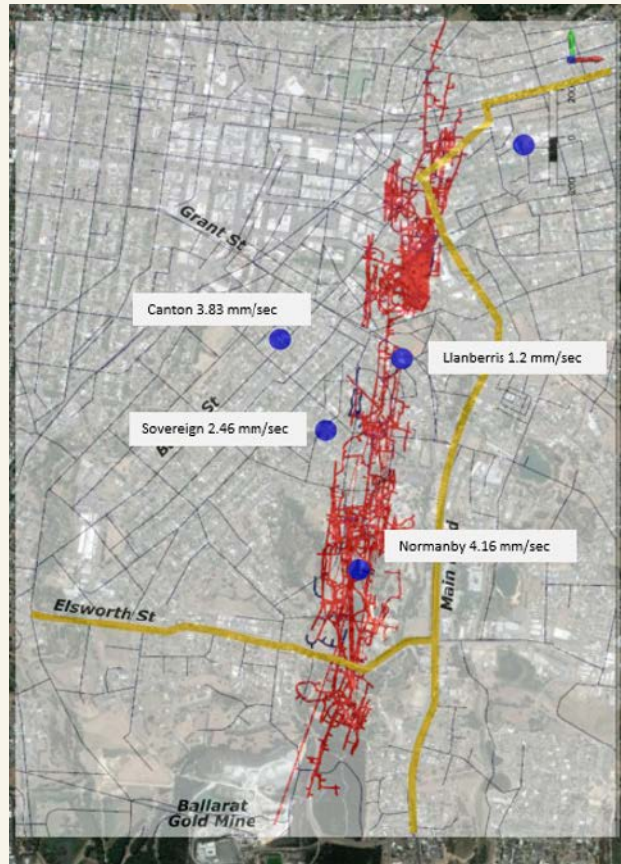
## BLASTING ACTIVITY

For each of the production (stope) firings, Ballarat Gold Mine has up to five vibration monitors placed in the field recording the Peak Particle Velocity (PPV).

The maximum vibration recorded during the quarter was 4.16 mm/sec. at Sovereign Hill for the Normanby compartment.

This result is the highest vibration result of the last 5 years.

Old mining Activity (red). Indicative areas of mining activity in Q1 2020 (blue)  
Blast monitor maximum peak particle velocity PPV (purple dots).



## BLAST VIBRATION ACTIVITY

COMPARTMENT	NO. OF ALL FIRINGS	NO. OF PRODUCTION (STOPE) FIRINGS	MINIMUM PPV	MAXIMUM PPV
Normanby	105	16	0.23 mm/sec	4.16 mm/sec
Sovereign	37	7	0.28 mm/sec	2.46 mm/sec
Canton	130	12	0.38 mm/sec	3.83 mm/sec
Llanberris	42	2	0.40 mm/sec	1.2 mm/sec
Britannia	7	0	0	0
TOTALS	321	37		



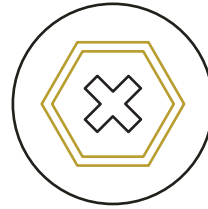
## EXPLORATION ACTIVITY

### Mining – Ballarat East

16,656 m of diamond drilling was conducted from underground during the quarter. Drilling tested exploration targets and continued to define known ore bodies within the Britannia, Canton, Golden Point, Llanberris, Normanby, Sovereign and Victoria compartments.

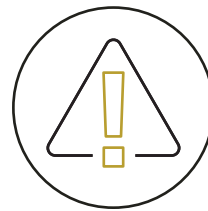
### Non-Mining

In January, Ironbark Mining, a subsidiary of Castlemaine Goldfields, was re-invigorated to execute regional exploration work. Ironbark, based in Maryborough, has principally focussed on the Tarnagulla tenements, but is also reviewing targets at Ballarat, Berringa and Snake Valley (to the west of Ballarat).



## NON COMPLIANCE

There were no licence non-compliances reported during the quarter.



## INCIDENTS

There were three environmental incidents for the quarter.

- The NOR482 stope firing resulted in six community feedback calls (February).
- A dead frog was found in the Cyanide bund (March).
- A scrub fire occurred offsite on the south east perimeter of the TSF (March).



## LAND MANAGEMENT

### Fire Prevention

Fire prevention works were delayed due to the late rains and low temperatures. Slashing commenced late in the quarter and was completed in the first few weeks of 2020. The planned burn for Tinworth Ave remains on the CFA planned burns program.

### General Maintenance and Weed Control

During the quarter clean-up of illegally dumped rubbish was undertaken between Elsworth St and Whitehorse Rd. Ballarat Regional Industries (BRI) has continued to maintain the Golden Point Shaft.

Slashing/week control works were conducted along Indicator Lane weed control work was completed. The boom spray work planned for the Otway St block has been abandoned due to the height and growth of the gorse. It will now be slashed and sprayed in May.



## ENVIRONMENTAL & SOCIAL MONITORING – DATA

### Air Quality

All seven monitoring locations were analysed and within compliance limits.

Results for insoluble solids (soil fraction) ranged between 2.0 and 19 g/m<sup>2</sup>/month across the seven sites with an average of 7.1 g/m<sup>2</sup>/month for the quarter. Higher than normal ash component for each sampling location for January 2020 can be attributed to significant bushfires and dust storms across the State.

### Surface Water Ballarat East

Ballarat Gold Mine discharged 42.15 ML at a mean flow rate of 0.63 ML per day during the quarter (Fig. 6): this flow rate is around 20% of the licenced 2.9 ML/day.

All surface water is discharged by Ballarat Gold Mine into the Yarrowee River at a single licenced discharge point (SWL). All parameters were compliant against EPA Discharge Licence conditions for the quarter.

Please refer to table below.

### Ground Water Ballarat East

Groundwater level changes were negligible this quarter. Cyanide (WAD CN) continues to be less than laboratory detection limits (<0.004 mg/L). Arsenic (As) results for seven of the bores remained stable except for bore VMB4 levels which showed a significant increase in March. VMB4 is currently being retested to see if this is a sampling anomaly.

### Ground Water Whitehorse Gully Investigation Bores

The new investigation bores for Whitehorse Gully are now be monitored quarterly to establish baseline concentrations prior to the construction of the new TSF. Results for EC, pH, WAD CN and groundwater levels are stable. Arsenic levels show a small rise in levels.

### Tailings Storage Facility Piezometer Data

Twenty-four vibrating Piezometers are used to detect any foundation/moisture movement within the foundations of the tailings storage facility. All piezometer data for the quarter remains stable and within expected ranges.

## SURFACE WATER BALLARAT EAST MONITORING

	UPSTREAM OF SWL (UNLICENCED)	SWL LICENCED DISCHARGE POINT INTO YARROWEE RIVER	DOWN STREAM OF SWL (UNLICENCED)
ML/Day		✓	
Arsenic	✓	✓	✓
Copper	✗	✓	✗
Iron	✗	✓	✓
Lead	✓	✓	✓
Manganese	✗	✓	✓
Turbidity (NTU)	✓	✓	✓
Electrical Conductivity (EC)	✓	✓	✓
Tot. Nitrogen	✓	✓	✓
Tot. Phosphorus	✓	✓	✓
pH	✓	✓	✓



## COMMUNITY

**There was a total of 61 community contacts for the quarter. 85% of the community contacts related to blast activity.**

- There was a marked increase in vibration complaints for the quarter particularly from increased development activity but especially from production in the Canton and Normanby compartments with highest readings of 4.16 mm/sec and 3.83 mm/sec recorded.
- A subsequent increase in proactive contacts to manage these complaints included the use of a roaming vibration monitors at the time of production blasting on some properties.
- There was also an increase in feedback from complainants informing us when the blasts seemed to be improved.
- Twelve new people made complaints and this number mostly increased in March – because the blasts were getting stronger and potentially because the COVID-19 lockdown meant more people were home during the day.
- There were three land management contacts including a complaint about long grass, notification of a tree down at Golden Point shaft and a request for blackberry control behind 126 Brittain Street which has been addressed.
- A neighbour from Sebastopol called to discuss a low rumble that could be heard at all hours of the day and night. Due to the persistence of the noise over the weekend it is unlikely to be related to mine activity and a site visit confirmed this.
- A successful ERC meeting and celebration of the 100th meeting was held in February.
- Distribution of over 3500 Community Newsletters to our neighbours including parts of Mt Clear, Sebastopol East, Mt Pleasant, Ballarat East and Black Hill South was completed.
- Two enquiries were generated from the newsletter. One was for traffic and land management around Tinworth Ave and the tailings storage facility (TSF). The other was for vibration and TSF flood capacity information.

Key Community statistics for 1 January to 31 March 2020 are presented below.

	BALLARAT GOLD MINE PRO-ACTIVE	NEIGHBOUR FEEDBACK	COMPLAINT
Vibration/ Noise	13	8	30
Noise	0	2	0
Amenity	0	2	1
Traffic	0	0	0
Other	3	2	0
<b>TOTAL</b>	<b>16</b>	<b>14</b>	<b>31</b>



## PROJECTS

### Tailings Storage Facility TSF3

Construction for the TSF3A 1 metre raise was put on hold in March of this year. Ballarat Gold Mine expects to reengage the contractor in October to finish the works. This 1 m raise will be the final lift for the current approvals and will provide storage until the proposed Whitehorse Gully TSF4 comes online during the first quarter of 2022.

### Whitehorse Gully TSF Work Plan

The conceptual Whitehorse Gully TSF Work Plan Variation (WPV) has been submitted to Earth Recourses Regulation and is still going through the approvals process. This WPV has been prepared to request approval for the construction, operation and eventual closure of the Whitehorse Gully TSF site area.