



**2023**

# **Quarterly Report**

**October - December**

**Mt Shamrock  
Environmental Management Plan  
3 Monthly Progress Update**

Prepared for Mt Shamrock Quarry Environmental Review Committee

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## Introduction and History

On 11 March 2008, the Mt Shamrock Quarry Environmental Management Plan Version 1:18 January 2008 (EMP) was formally enacted. This document established a framework to ensure compliance with local council, AAV, DPI, EPA and DSE requirements relating to the extension of extractive limits under Work Authority 174 (WA174). An Environment Review Committee (ERC) was formed to monitor the performance of the quarry against the EMP, the permit and WA174. The ERC consists of delegates from the relevant authorities, members of the Wurundjeri Tribe, and local residents. The ERC is chaired by an independent representative from All Possibilities Pty Ltd to ensure non-partisan administration.

This report details information on both monitoring results and management actions by the quarry in the preceding three months. This report will take the form of an exception report that is where there is a deviance from the EMP. This will be highlighted and the reasons for the deviance explained. A summary of quantifiable monitoring outcomes is also included. Figure 1.12 details all monitoring locations.

## Operational Update

- Operating hours unchanged;
- Management is unchanged with Leigh Elliott continuing as Quarry Manager and Nathan Thomas in the Operations Manager role;
- No mobile crushing took place during Q4
- Stripping and reclamation works have continued throughout Q4.
- The 2023 annual greenhouse gas (GHG) emissions result is 0.00398t/t, representing a 0.3% reduction (0.00399t/t in 2022). The result is influenced heavily by the stripping and reclamation works that were conducted between April and December. (Excluding the diesel consumed by the stripping works, the reduction would have been approximately 11% in 2023.)



Figure 1 - Site Aerial 12th January 2024

## 1.0 LRMP Update

Summary of actions completed in Q4 below;

### General

- General Weed treatment and fence maintenance around Quarry.
- Chainsaw large fallen branches;

### Netgain

- Pack spray broadleaf weeds throughout Northern section of Netgain with selective herbicide;
- Brushcut weedy grass species for biomass control in the northern section near entrance gate in areas that could not be slashed;
- Cut up large fallen branches in the northern section impeding weed control works and vehicle access. All woody material retained on-site.
- Brush Cutting weedy grass species Southern section (top half) for biomass control and in preparation for future spray works.

### Southern Extraction/ SE Extraction/0.8Ha/1.2 Ha

- Brush Cutting weedy grass for biomass and fire risk control, in preparation for future spray works;
- Spray and hand weed Chilean Needle grass;
- Pack spray pampas grass;
- Pack/tanker broadleaf weeds with selective herbicide;
- Seed collection of various Wallaby grass species 1.2 and .8 Ha to be used for reseeding sprayed areas in managed areas of the Quarry. Seed to be stored off site until spring.

### Phase A&B

- Follow up spray run phase A+B and sections of adjoining paddock for Chilean Needle Grass;
- Surveying of other nearby paddocks completed.

### Extraction and Phase C

- Pack spray broadleaf weeds with selective herbicide;
- Chainsaw woody weed species eastern border of phase C adjacent to sales area.

### Stripping and Reclamation

- Overburden removal (stripping) has continued during Q4 (red outline, figure 2) with emplacement of the rocky overburden and clay materials being placed in the western most corner (yellow outline, figure 2) for reclamation works. Stripping works completed in Q4 2023 with some shaping work to continue in Q1 2024.



**Figure 2 - 2023 Stripping area (red) and reclamation area (yellow)**

- Overburden material has been removed from the temporary emplacement (red outline, figure 3) and materials were placed in top South-South Eastern batter to complete the reclamation in this area (yellow outline, figure 3).



**Figure 3 - Reclamation of top South-South Eastern batter**

## 2.0 Non-Compliance and Complaints

Non-conformances:

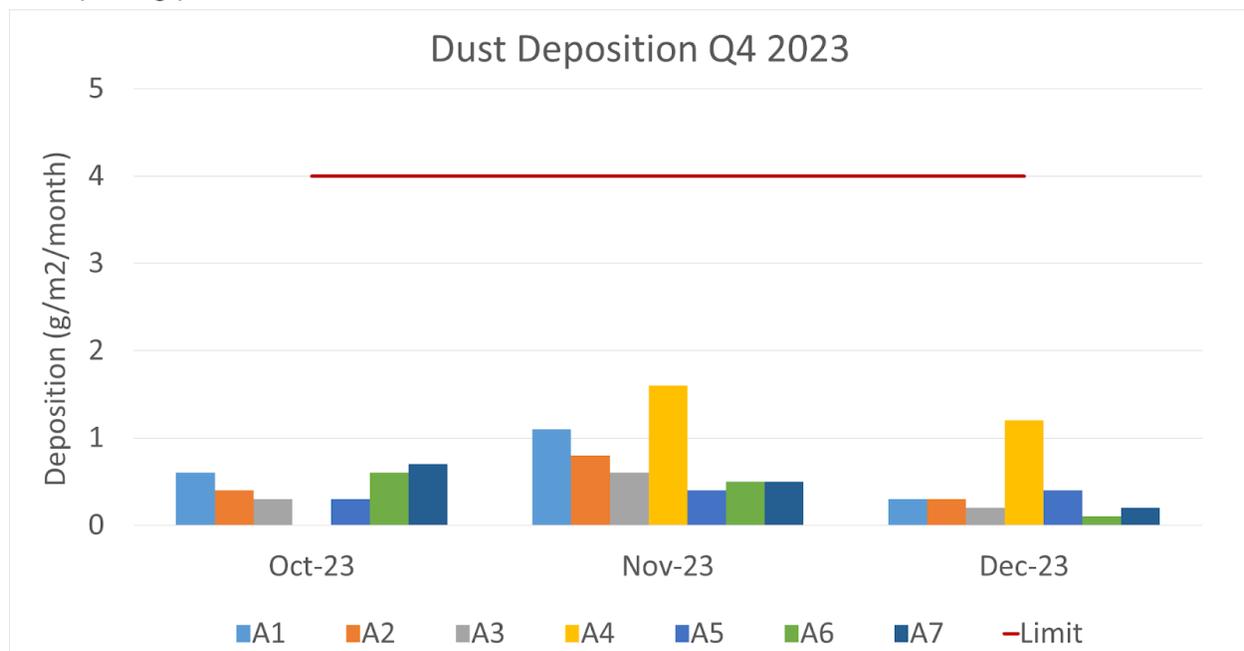
- Nil during Q4 2023

Complaints:

- Nil during Q4 2023

## 2.1 Air Quality – Dust

Depositional results have indicated the dust emissions tabulated below. No exceedances during the reporting period.



**Figure 4 - Dust Deposition Q4 2023. (Limit 4.0g/m2/mth)**

October A4 - Deposition Gauge: No result – bottle shattered.

Deposition results presented are Ash analysis test, rather than Total Solids, representing true mineral dust deposition generated by quarry activities.

## 2.2 Noise

Average noise levels for the 4th Quarter 2023 are shown below. No exceedances during the reporting period.

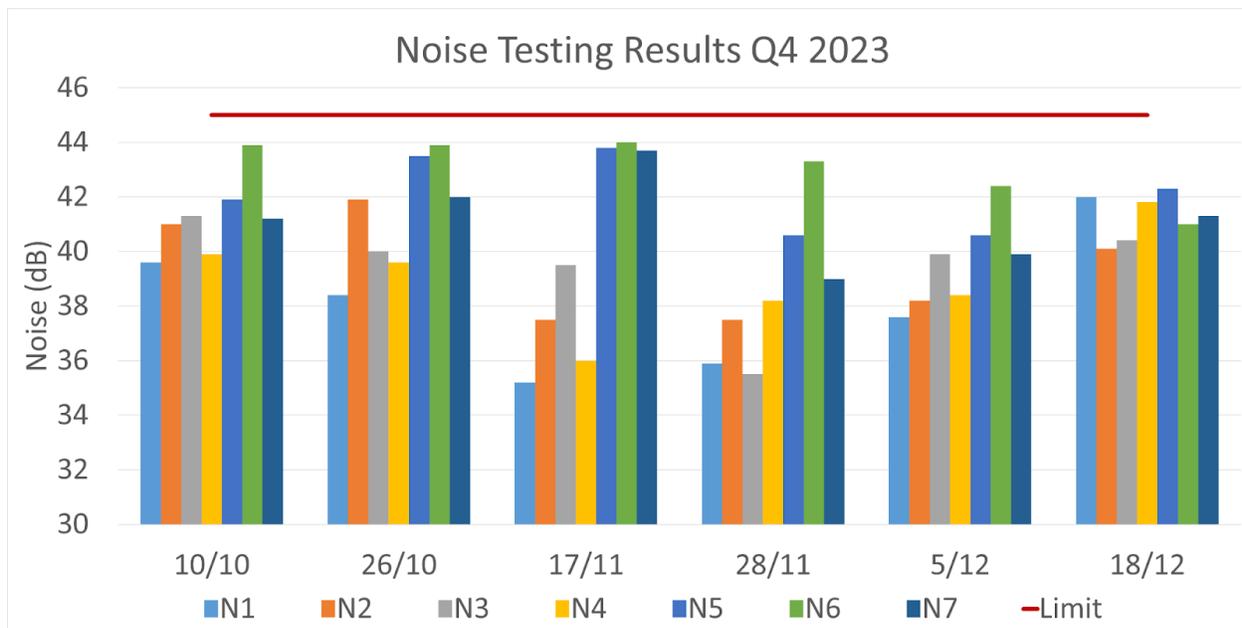


Figure 5 - Noise Testing Results Q4 2023. (Limit is 45dB under normal operating conditions)

## 2.3 Blasting

All blasting operations have been carried out in accordance with guidelines. No exceedances during the reporting period.

### Ground Vibration

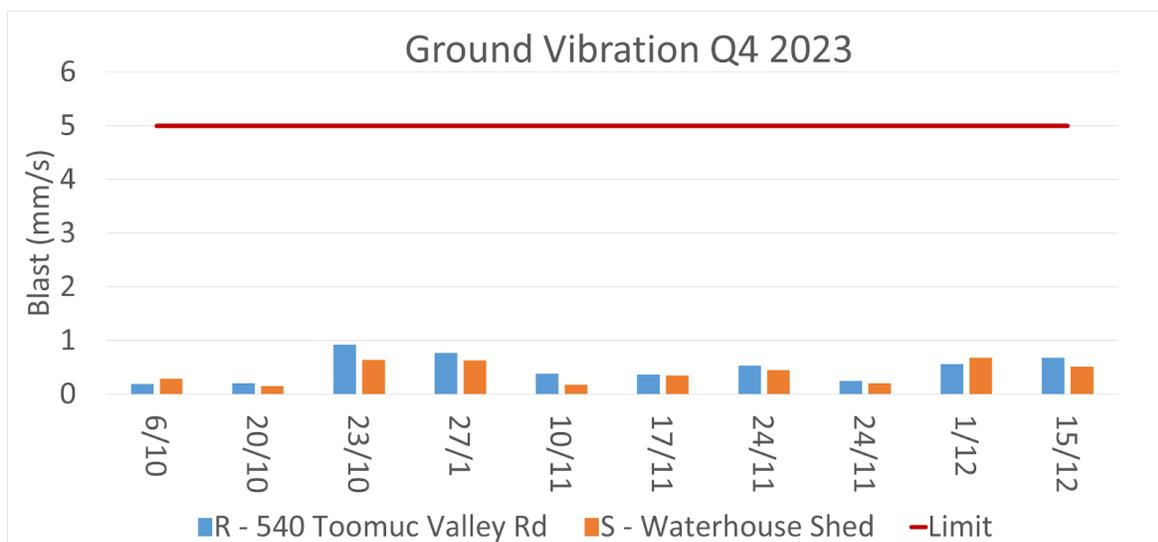
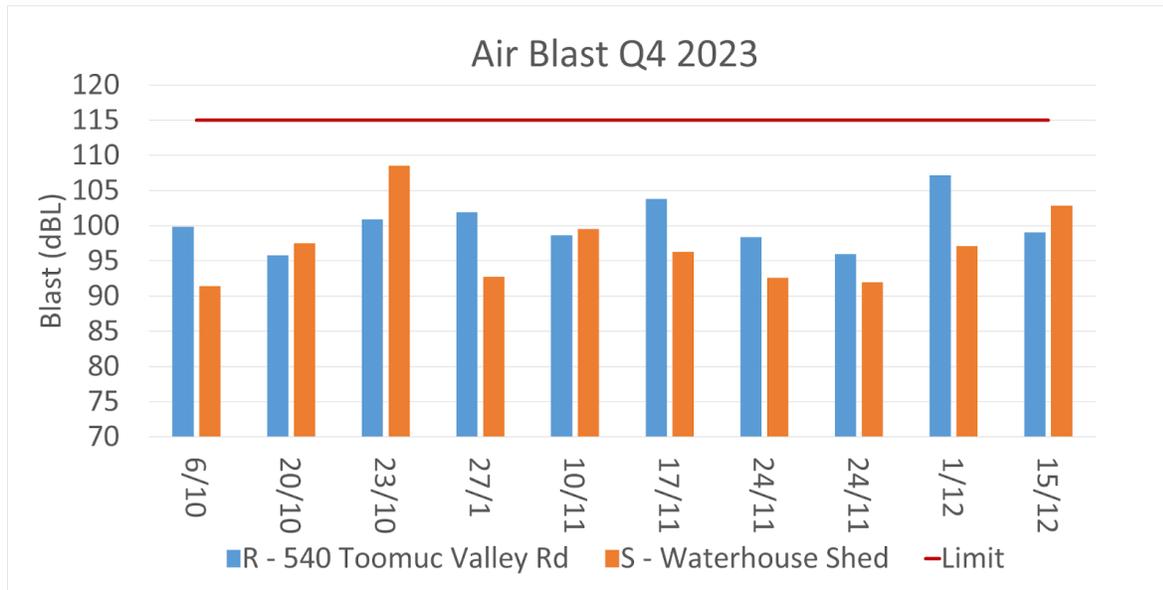


Figure 6 - Blasting; Ground Vibration Results Q4 2023 (Limit is 5mm/s for 95% of blasts in a 12 month period)

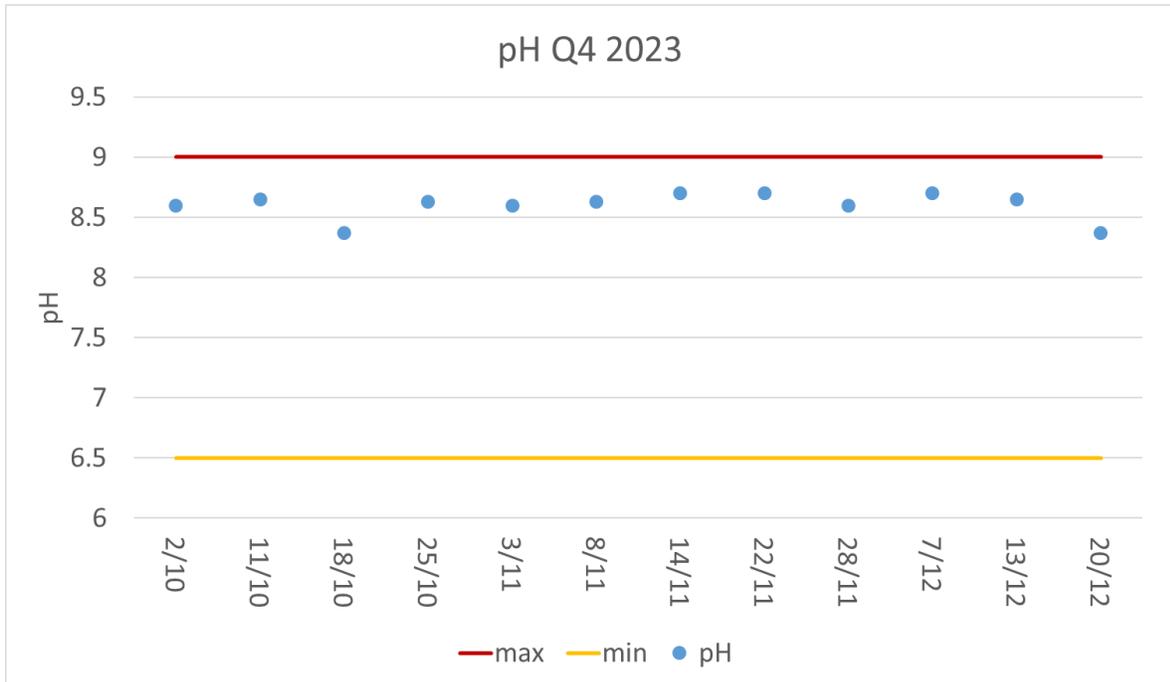
## Air Blast



**Figure 7 - Blasting; Air Blast Results Q4 2023 (Limit is 115 dBL for 95% of blasts in a 12 month period)**

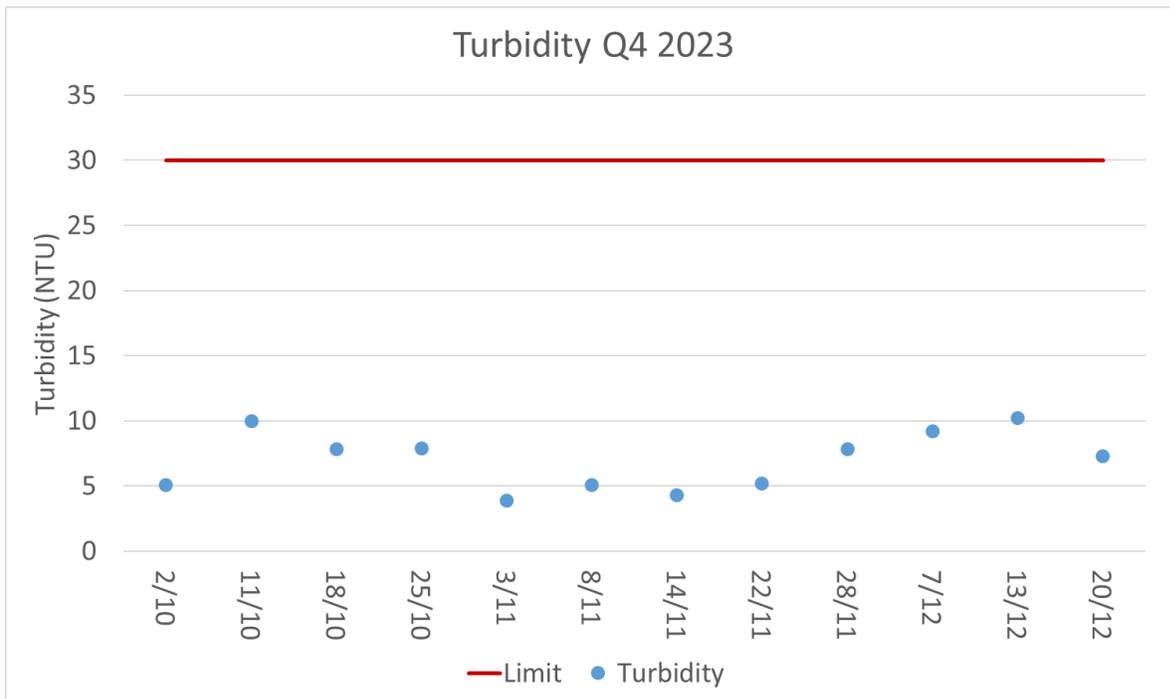
## 2.4 Surface Water, Drainage and Groundwater

**pH** – A measure of the Acidity or Alkalinity of the water limit 6.5 to 9.0. No exceedances during the reporting period.



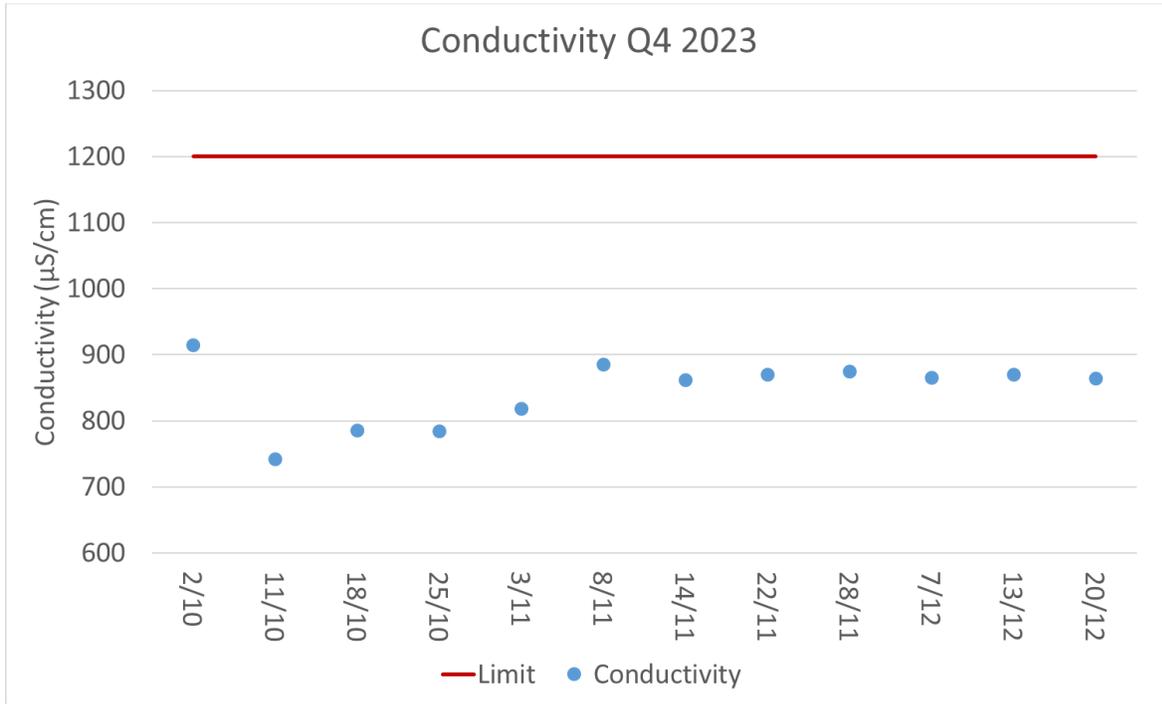
**Figure 8 - Discharge Water pH results Q4 2023**

**Turbidity** – Clarity of water Maximum 30NTU.



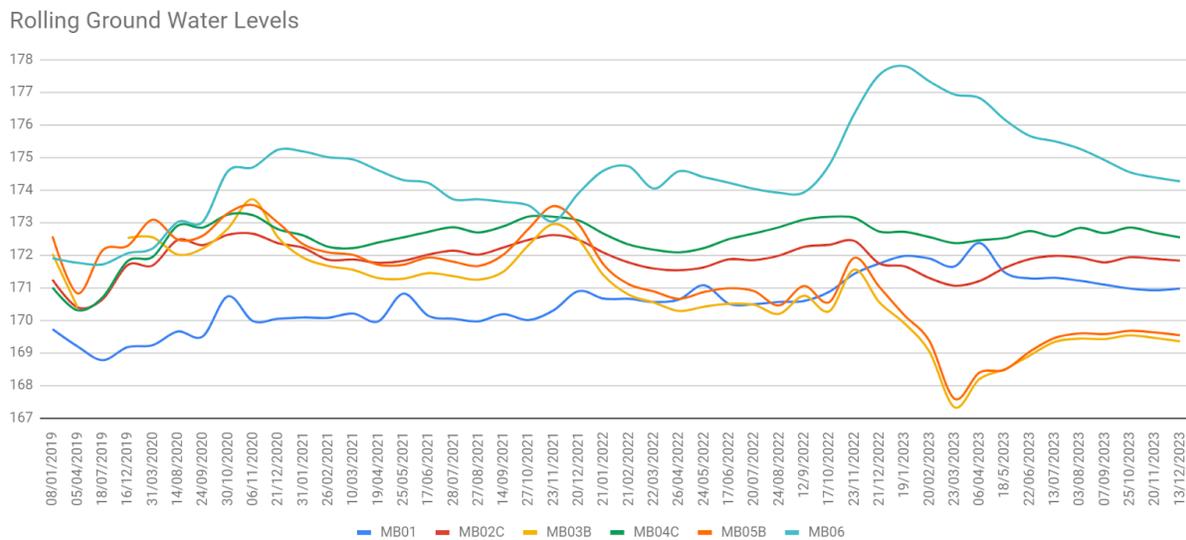
**Figure 9 Discharge Water Turbidity results Q4 2023**

**Conductivity** – A measure of the water’s capability to pass electrical current. Limit 1200µS. No exceedances during the reporting period.



**Figure 10 - Discharge Water Conductivity results Q4 2023**

### Bore Water Measurements



**Figure 11 - Groundwater levels 2019 to present.**

## In Pit water levels

In 2020, Holcim committed to begin and report the in pit water dam levels quarterly, to aid in the annual beneficial use analysis. This was formed as part of the revised EMP submission. Location and naming conventions are shown in the map for reference. All measurements are in RL's (the same unit as ground water levels)



Figure 12 - In Pit Water Identification

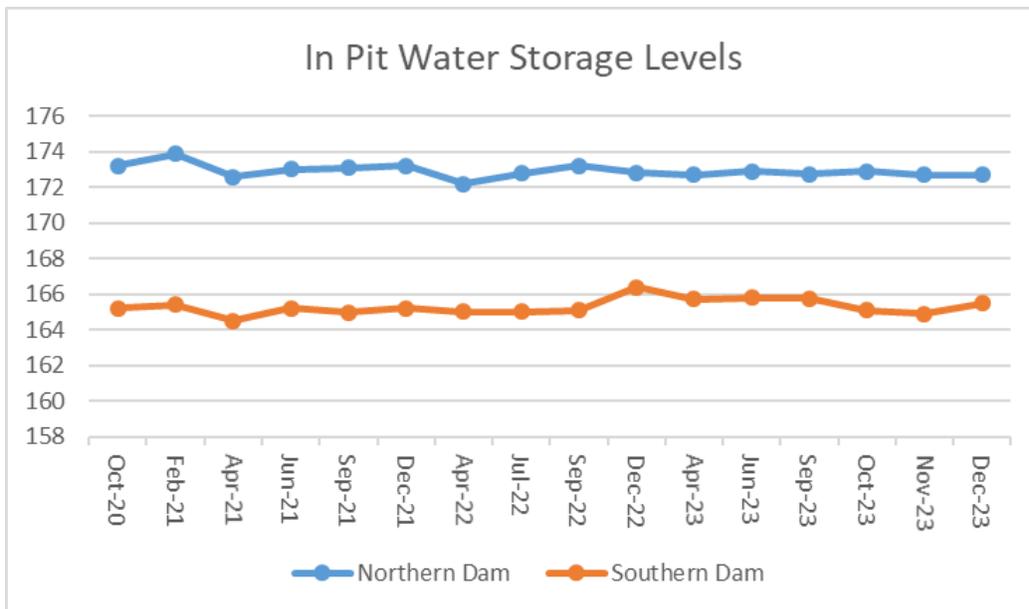


Figure 13 - In Pit Storage Levels October 2020 - Present

## 2.5 Waste

| 2023 Q4   |                         |            |
|---|-------------------------|------------|
| Categories  | Rolling 12 Month Tonnes | Av / month |
| Landfill  | 6.42t                   | 0.535t     |
| <b>Category</b>   | <b>YTD</b>              |            |
| Steel   | *166.7t                 |            |
| Recycled Oil  | 9,400L                  |            |
| Prescribed  | 2.84t                   |            |
| Interceptor waste/<br>Hydrocarbon contaminated<br>water | 25,050L                 |            |
| <b>Other</b>  |                         |            |
| Manganese - Recycled                                    | 6.48t                   |            |
| Conveyor belt - Recycled                                | 7.81t                   |            |
| Concrete - Recycled                                     | **27.5t                 |            |

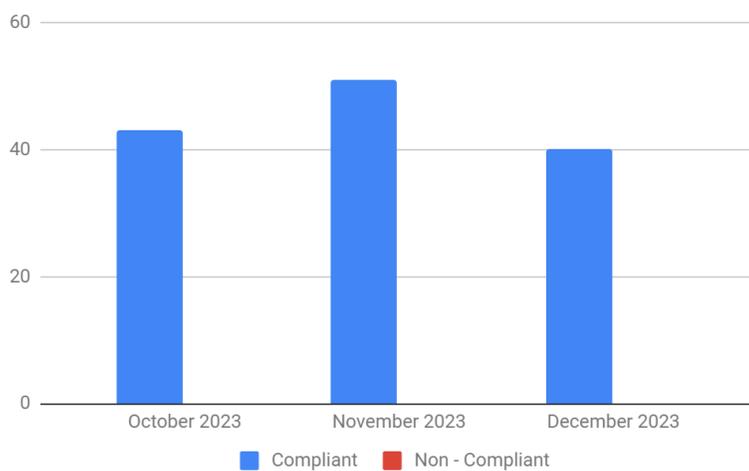
**Figure 14 - Quarry Waste Generation Summary of Q4 2023**

\*Disposal of 3 old mining trucks (120 tonnes) and grave yard clean up (25.4 tonnes)

\*\*Disposal of weighbridge deck. Approximate weight based on volume 11m<sup>3</sup> at 2.5t/m<sup>3</sup>.

## 2.6 Truck Tarping

Tarping compliance Q4 2023



**Figure 15 - Tarping visual checks of Q4 2023**

## 2.7 Greenhouse Gas Emissions

At the end of each year Pakenham Quarry calculates the annual greenhouse gas (GHG) emissions resulting from quarry works and operations with an aim to reduce GHG emissions. The target is to achieve an overall reduction target of 3% in CO<sub>2</sub>- e (t) for combined fuel, electricity and explosives usage year on year.

The 2023 result is 0.00398t/t, representing a 0.31% reduction against \*0.00399t/t in 2022. The result is driven heavily by the stripping and reclamation that were conducted between April and December. Excluding the diesel consumed by the stripping and reclamation works the reduction would have been approximately 11%.

\*Correction made to renewable power calculation in 2022.

## Appendix 1 - Limits & Definitions

### 2.1 – Air Quality - Dust

#### Dust Deposition

Deposition bottles are stationed at 7 locations including a background monitoring location at station A7. Particulate matter sampled by this method is predominantly dust particles which, because of their size rapidly settle from the air. Results can be affected by Ash from burning off, bird droppings and insects.

**Limit** – 4.0gm/m<sup>2</sup> mth

#### Reactive Monitoring

Reactive management tool with preset alarm if the PM10 1 hour average is exceeded. Reactive monitors are similar to the Hi Vol monitors.

**Limit** – 64 µg/m<sup>3</sup> (1 hour average)

### 2.2 - Noise

Noise monitoring locations and limits set in the EMP are monitored through the use of a RION hand held monitor. Employees on site who conduct the monitoring are trained and certified in theoretical and practical assessment of the RION hand held meter and basic acoustics.

**Limits** – 45dB(A) LAeq 7:00 – 18:00 Normal Operation  
68dB(A) LAeq 7:00 – 18:00 Noise Attenuation Mound Construction

### 2.3 – Blasting

Blasting is monitored for Air Blast and Ground Vibration during every blast performed on site.

**Air Blast** – a measurement of air pressure pulse travelling through the air.

**Ground Vibration** – a measurement of the shock wave passing through the ground

#### Limits –

Air Blast Limits – Peak Air Blast of 115 dBL at sensitive locations for 95% of blasts in a 12 month period

Ground Vibration Limits – Peak Particle Velocity (PPV) 5mm/sec at sensitive locations for 95% of blasts in a 12 month period

#### **2.4 – Surface Water, Drainage & Groundwater**

During discharge, water is monitored at the V Notch located at the bottom of the Donnazon property spillway. A solar powered flow meter logs flow data and the water is sampled manually by trained and certified employees. Water is tested for Turbidity, pH and conductivity. Water is monitored at Donnazzons dam regularly prior to discharge to determine if the water is ok to discharge.

**pH** – A measure of the Acidity or Alkalinity of the water. Limit 6.5-9.0

**Conductivity** – A measure of the water's capability to pass electrical current. Limit 1200 $\mu$ S

**Turbidity** – Clarity of water. Maximum 30NTU

## Appendix 2 – Monitoring Locations



### Appendix 3 - EMP Audit action list 2022

| EMP Reference               | Rating | Non Conformance   | Recommendation   | Status      |
|-----------------------------|--------|---|--|-------------|
| B-2.1.3 Air Quality         | MNC    | The site weather station was not functioning for extended periods during the year 2022-23.  | Rectify or replace the weather monitoring equipment at the site so that it is reliably recording and logging the required data at all times.                                   | Complete    |
| 2.4.2 Surface Water         | MNC    | Three (3) turbidity exceedances were recorded during the audit period, the highest being approx. 80 NTU (Licence Limit 30).   | Investigate and then implement effective measures to cease the discharge from the site of sediment and/or colloid-contaminated water that causes exceedance of Licence limits. | In progress |
| 1.2 – Accompanying Drawings | MNC    | Drawings attached to revised version of the LRMP (July, 2021) have not been amended from those originally published with the ERM Landscape & Rehabilitation Report, 2005 (ref. 4) | Revise the attached drawings to the LRMP so that they accurately represent the current rehabilitation program and its desired outcomes.  | Complete    |
| 2.6 - Review LRMP           | MNC    | The LRMP is not being reviewed annually as specified in this section of the Plan.   | Holcim and the relevant stakeholders should together agree on a LRMP review frequency that best meets the  | In progress |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  | <p>environmental requirements for managing rehabilitation of the site and then formulate, agree on and commit to a review and approval timeline that enables that frequency to be met.</p> |  |
|--|--|--|--|--|

- Description    **Minor**        Minor non conformance - if the environmental impact of the non conformance is likely to be contained within the site or have limited off site impact or is a documentation issue.
- Major**        A potential or actual significant off site impact to the environment and or legal compliance issue including non conformance with prescribed limits of the EMP