Mt Shamrock Environmental Management Plan - 3 Monthly Progress Update

July 21 - September 2021

Prepared by Matt Dodd for Mt Shamrock Quarry Environmental Review Committee

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
- EMP submitted to Cardinia Shire for approval process
- Done survey picture from October 2021 shown below

1.0 LRMP Update

All actions have been completed during the reporting period. Summary of actions completed below

- Hydroseed 0.8Hectares progressing rehabilitation planting further along the South west rehabilitated faces.

- Preliminary planting of 1250 trees in the 0.8 Hectares, species list below

Upper Story (canopy)		
Species	**Common Name**	**Number**
Eucalyptus Obliqua	Messmate	100
Eucalyptus radiata subsp. radiata		150
Eucalyptus cyppelocarpa	Mountain Grey Gum	50
Eucalyptus dives	Broad-leaf Box	50
	Total	**350**
Upper - Mid Story (tall shrubs)		
Species	**Common Name**	**Number**
Ozothamnus ferrugineus	Tree Everlasting	50
Cassinia aculeata	Dogwood	50
Bursaria spinosa		50
Acacia paradoxa	Hedge Wattle	50
Hakea nodosa		50
Hakea ulicina		
Acacia mearnsii	Black Wattle	50
Acacia stricta	Hop Wattle	25
Acacia implexa	Lightwood	50
Allocasuarina littoralis	Black Sheoak	50
	Total	**425**
Lower-mid story (small shrubs)		
Species	**Common Name**	**Number**
Correa reflexa		50
Acacia genistifolia		50
Goodenia ovata		50
Epacris impressa		50
Acacia myrtifolia		50
	Total	**250**
Grand Total		**1025**

- Planting of 700 additional trees in Phase A & Phase B (species list below)

Phase A & B In-fill List		
Species	**Common Name**	**Number**
Eucalyptus Obliqua	Messmate	100
Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint	150
Acacia paradoxa	Hedge Wattle	100
Hakea nodosa	Yellow Hakea	50
Acacia mearnsii	Black Wattle	100
Acacia pycnantha	Golden Wattle	50
Cassinia aculeata	Dogwood	50
Allocasuarina littoralis	Black Sheoak	50
Acacia myrtifolia	Myrtle Wattle	50
Daviesia latifolia	E. goniocalyx	50
Total		**750**

- Infill planting of South Eastern extraction (300)
- General Broad Leaf, Blackberry, Pampas Grass and grassy weed treatment around property
- Fence maintenance around property
- Brush Cutting around previous plantings in Southern Rehabilitation areas
- Collection of tree guards for reuse
- Netgain maintenance - hand Weeding, pack spraying of perannual grases,

2.0 Non-Compliance and Complaints

Non-conformances:

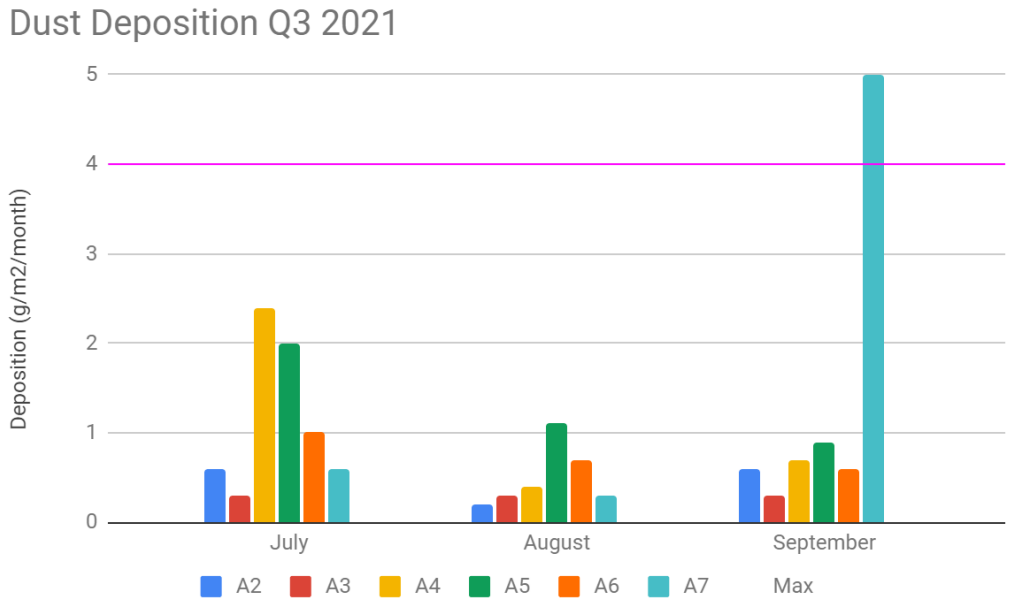
- Air Blast exceedance, 115.9dbL at Waterhouse monitoring station, reported to ERR, Terrock Investigated, no definitive route cause, investigation report suggests heavy cloud cover at time of blast and have a larger delay when firing 2 blasts on the same day. This was the site's first exceedance since 2013. ERR required no further action
- EPA annual return, Turbidity median for 2020-2021 reporting period was slightly over maximum, licence limit for median turbidity is 15, site result was 18.9. Reported to the EPA, no action required, it was an administration error by site. This process has been resolved.
- Exceedance at Background monitoring location A7 (5g/m2) however this is not an exceedance related to the quarry. All other site deposition results were well under the limit of 4g/m2

Complaints:

- Nil

2.1 Air Quality – Dust

DEPOSITIONAL results have indicated the dust emissions tabulated below

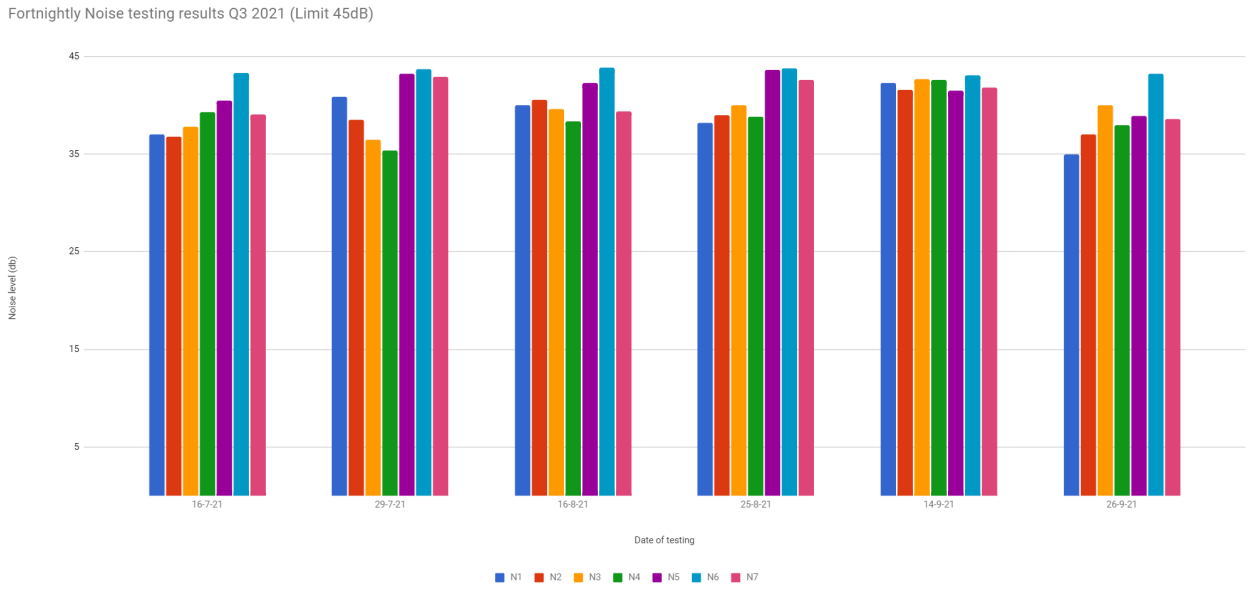


Limit 4.0g/m2/mth

Note that during Q3 the deposition results presented are Ash analysis test, rather than just standard deposition, representing true mineral dust deposition generated by quarry activities. Note Exceedance at Background monitoring location A7 (5g/m2) however this is not an exceedance related to the quarry as there was construction activity near this station, in addition this is the background monitoring location.

2.2 Noise

Average noise levels for the 3rd quarter are shown below.

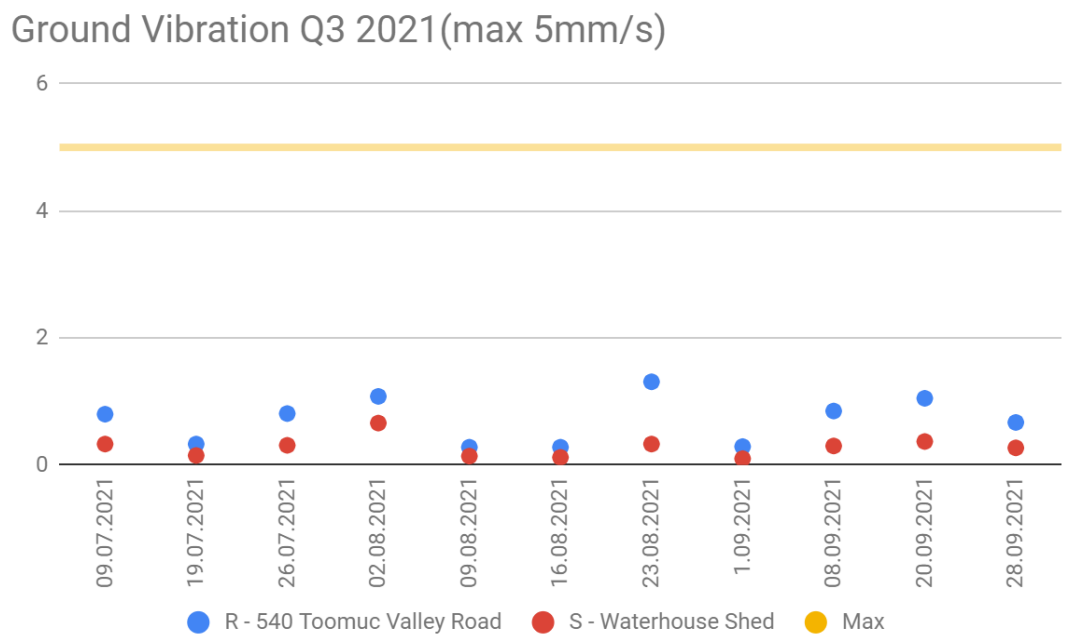


Limit is 45dB under normal operating conditions

2.3 Blasting

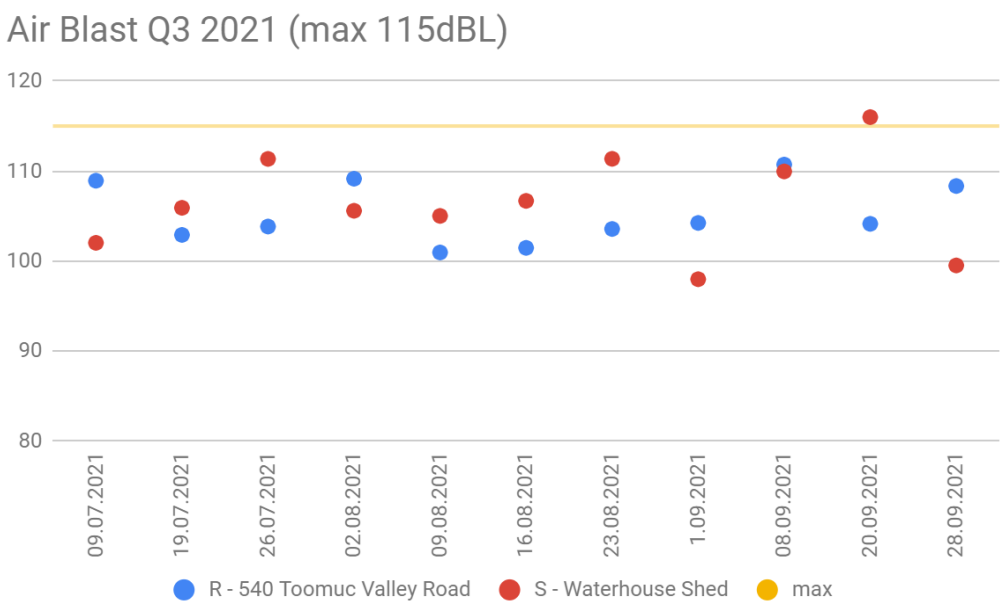
All blasting operations have been carried out in accordance with guidelines.

Ground Vibration



Limit is 5mm/s for 95% of blasts in a 12 month period.

Air Blast



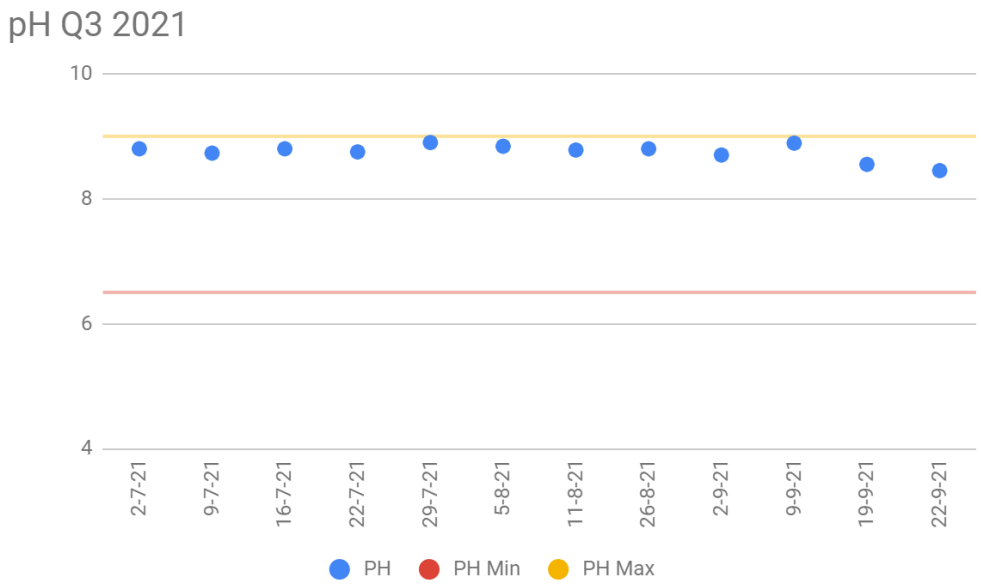
*** Exceedance of 115.9 at Waterhouse shed was reported to ERR as per notes in the opening section of this report.**

Limit is 115 dBL for 95% of blasts in a 12 month period.

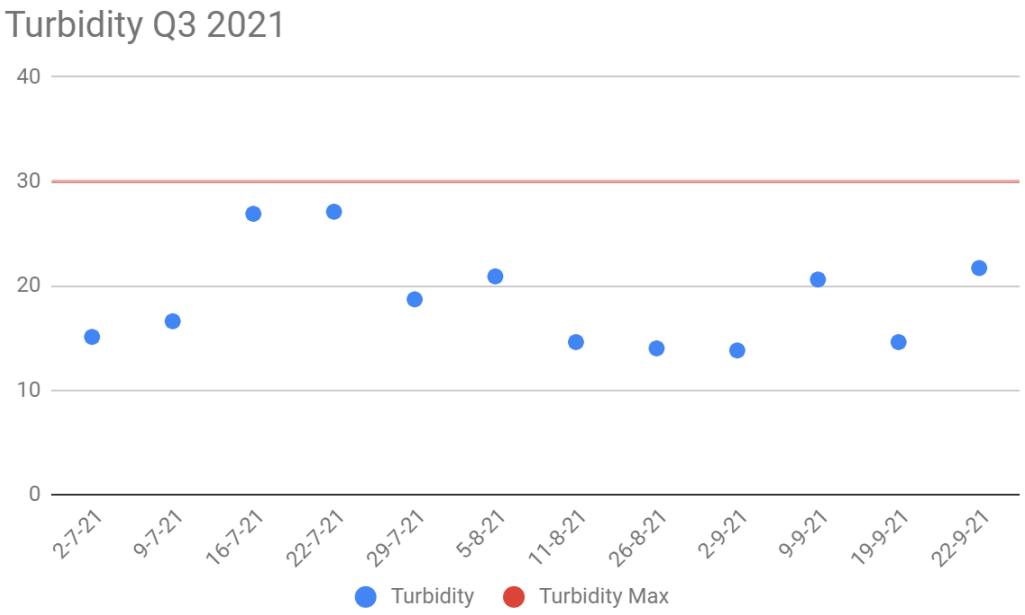
2.4 Surface Water, Drainage and Groundwater

Graphs showing the Q3 water results

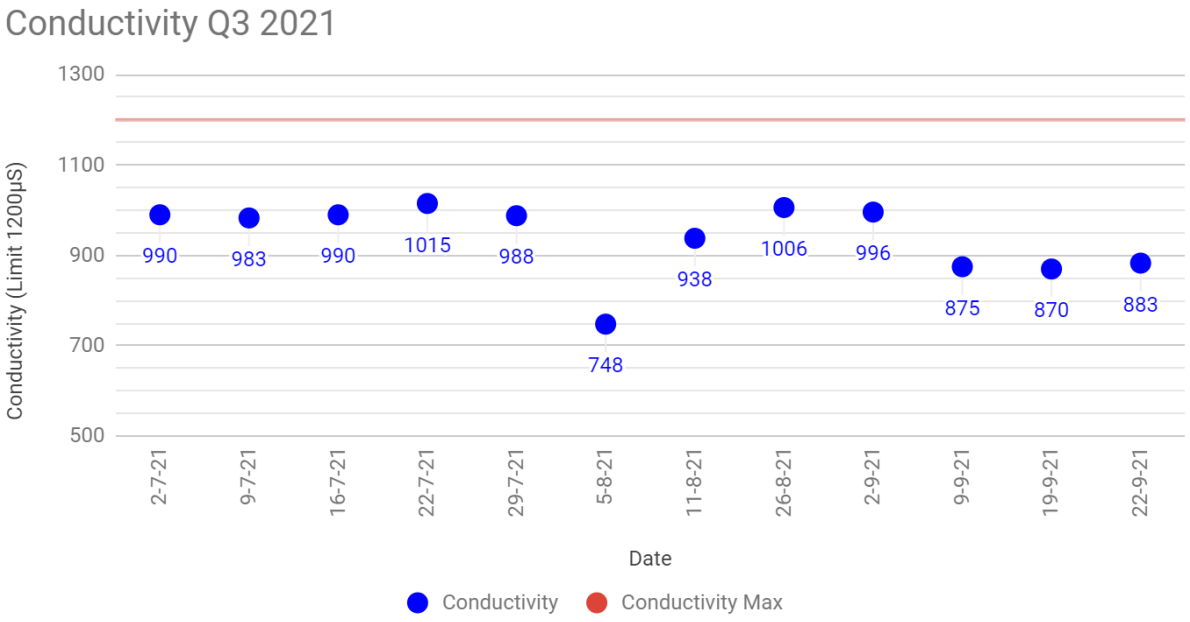
pH – A measure of the Acidity or Alkalinity of the water limit 6.5 to 9.0



Turbidity – Clarity of water Maximum 30NTU

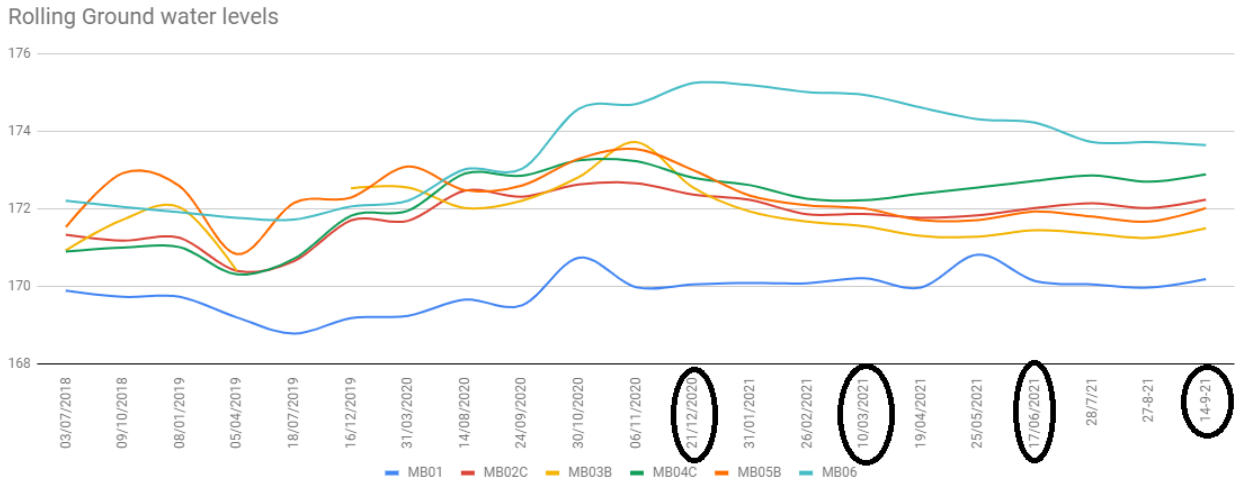


Conductivity – A measure of the water's capability to pass electrical current. Limit 1200µS



Bore Water Measurements –

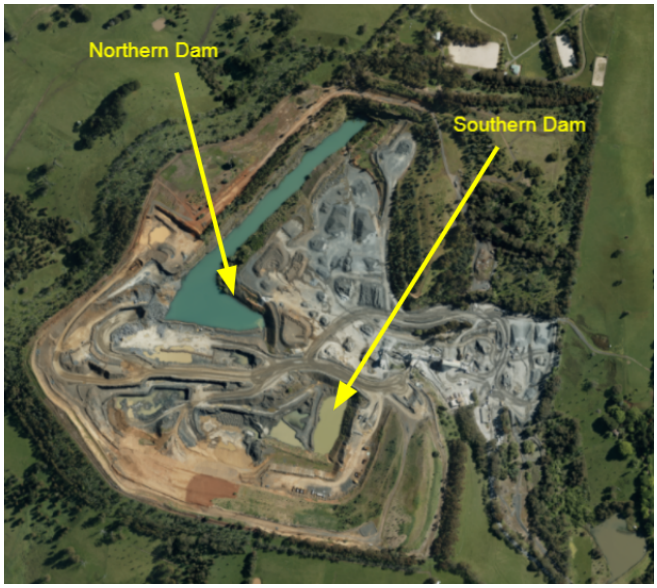
Table showing rolling 12 month GWL.

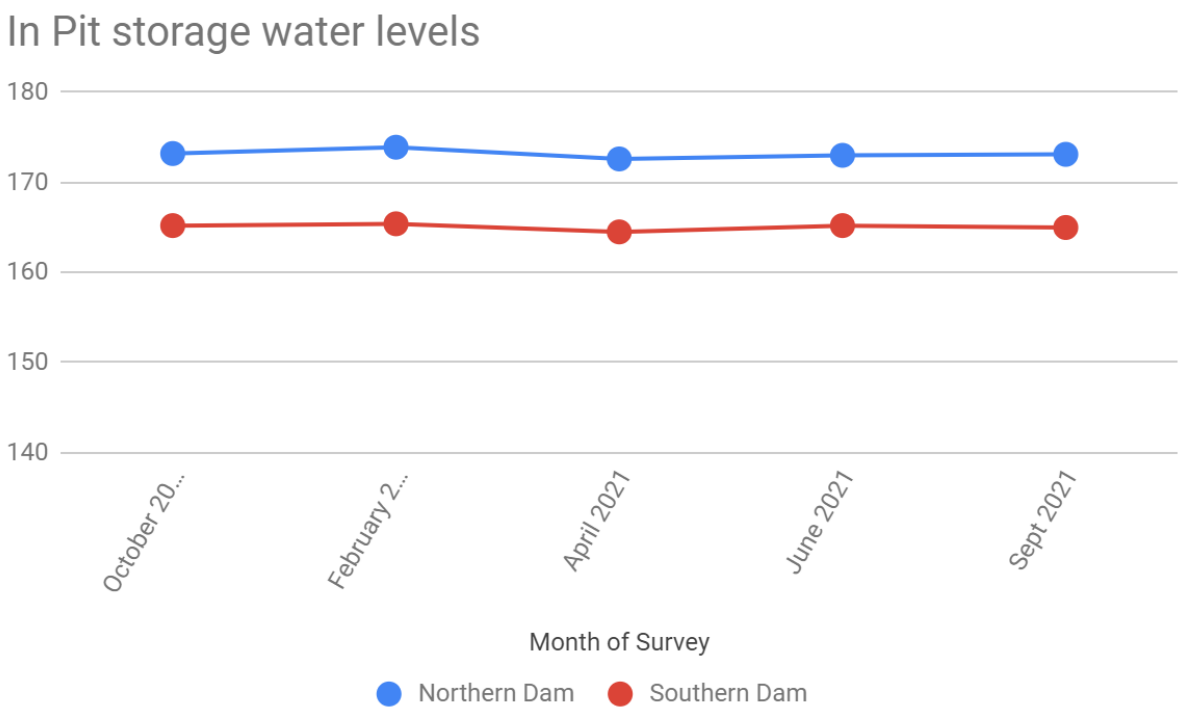


Circled dates indicate from Dec 2021 the readings conducted by AECOM. All readings prior to August 2020 were taken by AECOM.

In Pit water levels

In 2020, Holcim committed to begin and report quarterly the in pit water dam levels 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)





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WASTE

Quarry Waste Generation

Categories	Rolling 12 Month Tonnes	Av / month
Landfill	7.34	0.61
Category	**YTD**	
Steel	39.00	T
Recycled Oil	5,800	L
Prescribed	1,435	L
Interceptor waste	10,500	L
Other		
Conveyor belt	6T	repurposed

TARPING

Evaluation of trucks leaving the site concluded that there is minimal material being tracked on to public roadways, representative sampling identified all loads for the Quarter were correctly loaded.

Graph showing Tarping visual checks

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^2 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^3 (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 – Peak Air Blast of 115 dBL at sensitive locations for 95% of blasts in a 12 month period

Ground Vibration – 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 1200µS

Turbidity – Clarity of water. Maximum 30NTU

Appendix 2 – Monitoring Locations

EMP Audit action list 2020

EMP Reference	Rating	Non Conformance	recommendation	Status
2.2.3 Noise	MNC	Rental water truck has a reverse beeper not a squarker	Replace reverse device with a squarker	Closed
2.6.2 GHG emissions	MNC	Holcim did not meet its energy reduction target of 3% (2% was achieved)	Investigate further measures to reduce energy usage per tonne of product delivered. These could include benchmarking the site against similar sites in Australia and overseas, and adopting strategies used elsewhere	Open
2.12.3 Waste Management	MNC	Waste streams at maint / service area not being properly segregated	Develop further measures to ensure - Co-mingling of recyclable and regulated waste in landfill skip ceases - Use of inappropriate or improperly labelled waste bins within	Closed

			workshop ceases, by removing bins from sites - Cardboard waste is compacted in the cardboard recycling skip - Make sure all chemicals are stored properly	

2021 EMP audit Non conformances

EMP reference	Rating	Non Conformance	recommendation	Status
6.3	Major	Non compliant water data was not reported to the EPA	Report to the EPA and take measures to prevent this reoccuring	Complete
2.1.3	Minor	Dust deposition bottles were not collected for 3 consecutive months	Determine process to prevent this reoccurring	complete
2.4.2	Minor	A small number of PH and turbidity exceedances were recorded in samples taken at the EPA licence discharge point during discharge of surface water from site	Undertake investigation into the cause of the turbidity and pH exceedances measured at the EPA license discharge during discharge of surface water from the premises. Implement necessary controls and other measures as necessary to ensure licence discharge limits are met at all times	Complete
2.4.2	Minor	Turbidity meter was almost 12monts overdue for calibration and pH solutions are not being routinely used prior to conducting water quality monitoring	Document and implement a water quality monitoring procedure that includes instructions on the correct use and field calibration of water quality monitoring instruments	Complete
2.6.2	Minor	The site did not meet its annual greenhouse gas emission reduction target	Investigate further measures that can be taken to achieve annual greenhouse gas emission target. Include consideration of offsets such as carbon offset purchasing, and the sourcing of electricity from renewable generation	In progress

description	**Minor**	minor non conformance - if the environmental impact of the non conformance is likely to be contaminated 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