

Extension for 'Speeding up nature to trap carbon dioxide' The potential role of enhanced weathering and carbonation in mitigating climate change'

The hydrated Mg-carbonate mineral, hydromagnesite precipitates within mine tailings at the Mount Keith Nickel Mine, Western Australia as a direct result of mining operations. Research into the amount of CO₂ fixation indicates that at least 80% of carbon stored in hydromagnesite has been captured from the modern atmosphere. Also it is suggested that the current rate of carbon mineralization could be accelerated.

Approximately 39,800t/yr of atmospheric CO₂ are being trapped and stored in tailings at Mount Keith. This represents an offsetting of approximately 11% of the mine's annual greenhouse gas emissions. Thus, passive sequestration via enhanced weathering of mineral

waste can capture and store a significant amount of CO₂.

Recommendations are made for changes to tailings management and ore processing practices that have potential to accelerate carbonation of tailings and further reduce or completely offset the net greenhouse gas emissions at Mount Keith and many other mines.

Further information:

<https://espace.library.uq.edu.au/view/UQ:331201>

https://www.earthlearningidea.com/PDF/403_Net_zero_Enhanced_weathering.pdf

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