

Source Kerry Knight –

[Effects of Noise Pollution on Humans Health and Animals - Conserve Energy Future \(conserve-energy-future.com\)](http://conserve-energy-future.com)

Effects of Noise Pollution on Humans Health and Animals

Noise pollution refers to a sound that is annoying, a nuisance or undesired for the ears and that which can impact the activity or behavior of the animal and human life. It is also known as sound pollution or environmental noise, mainly caused by transportation and transport systems like vehicles, trains, or planes, and machines, music systems, megaphones, and industries, to mention a few.

Noise is regarded as a pollutant majorly because it disrupts the natural flow of hearing or the normal hearing sense. Given that noise is sound that is undesired, it can have adverse effects on both humans and animals, as discussed in this article.

<https://www.everythingconnects.org/noise-pollution.html>

Noise pollution is an unwanted or disturbing sound which can interfere with normal activities for humans and wildlife, such as sleeping, conversation, reproduction, communication, or disrupt or diminish one's quality of life. Noise pollution can come from many sources, such as automobiles, motorcycles, aircraft, ships, trucks, buses, jet planes, construction equipment, electrical machinery, lawn mowers and leaf blowers, to name a few. Excessive noise pollution, from the city streets to the oceans' commercial shipping traffic, can have harmful effects on the humans, plants, animals, trees and marine life constantly exposed to it. Long-term exposure to traffic noise may lead to coronary heart disease and accounts for approximately 210,000 deaths in Europe each year. [Learn more](#) | [Contact The Noise Experts](#)

ANIMALS – NOISE POLLUTION

<https://www.conserve-energy-future.com/effects-noise-pollution-humans-health-animals.php>

<https://www.everythingconnects.org/noise-pollution.html>

= general info, no references, still useful for “words” for a general overview provided can get backing information

[https://www.nps.gov/subjects/sound/effects\\_wildlife.htm](https://www.nps.gov/subjects/sound/effects_wildlife.htm)

<https://www.iflscience.com/environment/how-noise-pollution-changing-animal-behaviour/>

= general & possible references

<https://www.science.org.au/curious/noise-pollution-and-animals> (good diagrams) check up their qualifications

<https://www.science.org.au/curious/earth-environment/noise-pollution-and-environment> (has some academic names to chase up)

<https://nepis.epa.gov/Exe/ZyNET.exe/9101NNCV.TXT?ZyActionD=ZyDocument&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=>

<http://www.onlinelibrary.wiley.com/doi/pdf/10.1111/j.1461-0248.2011.01664.x>  
&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000024%5C9101NNCV.txt&Use  
r=ANONYMOUS&Password=anonymous&SortMethod=h%7C-  
&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=  
hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&Maxim  
umPages=1&ZyEntry=1&SeekPage=x&ZyPURL

not sure how to get the contents of this – too old?

<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1461-0248.2011.01664.x>

[randd.defra.gov.uk/Document.aspx?Document=10048\\_NO0235\\_PublishedReport.pdf](http://randd.defra.gov.uk/Document.aspx?Document=10048_NO0235_PublishedReport.pdf)

<https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.2127>

[https://www.researchgate.net/publication/264676584\\_EFFECT\\_OF\\_NOISE\\_ON\\_PERFORMANCE\\_STR  
ESS\\_AND\\_BEHAVIOUR\\_OF\\_ANIMALS\\_INTRODUCTION](https://www.researchgate.net/publication/264676584_EFFECT_OF_NOISE_ON_PERFORMANCE_STR<br/>ESS_AND_BEHAVIOUR_OF_ANIMALS_INTRODUCTION)

<https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-019-0146-6>

<https://www.nap.edu/read/23479/chapter/4>

(scientific, has references & other names to check out)

[https://www.fhwa.dot.gov/ENVIRONMENT/noise/noise\\_effect\\_on\\_wildlife/effects/wild04.cfm](https://www.fhwa.dot.gov/ENVIRONMENT/noise/noise_effect_on_wildlife/effects/wild04.cfm)

<https://www.pbs.org/newshour/nation/noise-pollution-humans-wreaking-havoc-u-s-wildlife>

[http://www.icben.org/2003/pdf/104\\_t7.pdf](http://www.icben.org/2003/pdf/104_t7.pdf)

From draft MFG noise document

***“The dB(A) sound pressure level is used almost universally to describe the noise level of many items of noise emitting machinery. However, published dB(A) sound pressure levels should be used for comparative purposes only, they are not designed to reflect actual installed noise levels.*”**

***The assumptions that are used to calculate the dB(A) are rarely replicated in real life situations and, therefore, published dB(A) values will not necessarily represent the actual noise levels that may be experienced on site.”***

<https://www.fantech.com.au/Content.aspx?ContentID=L3>

As is clearly documented, Decibel levels are an exponential scale. For example, 80 dB is twice as loud as 70dB. It is important to remember that dB is commonly used to quantify *sound levels*. It is not a unit of sound, but a unit of pressure. The decibel is a logarithmic unit that indicates the ratio of a physical quantity to a reference level.

This need to be taken in to consideration when assessing the dB increases that Mining activity brings, along with the implications for health.

<https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm>

The World Health Organisation defines health as “a state of complete physical, mental and social wellbeing, not merely the absences of disease or infirmity” (EES 2.1.1 pg. 22)

“Social health can be defined as our ability to interact and form meaningful relationships with others. It also relates to how comfortably we can adapt in social situations. Social relationships have an impact on our mental health, physical health and mortality risk. “

<https://blog.hif.com.au/mental-health/what-is-social-health-definitions-examples-and-tips-on-improving-your-social-wellness>

“Social and emotional wellbeing is essential for our overall health and wellbeing. Being socially and emotionally well means being able to realise your abilities, cope with the normal stresses of life, work productively and contribute to your community.”

<https://www.healthierwork.act.gov.au/supporting-resources/health-information/social-and-emotional-wellbeing/>

“A person conducting a business or undertaking has the primary duty under the WHS Act to ensure, so far as is reasonably practicable, that workers and other persons are not exposed to health and safety risks arising from the business or undertaking.”

<https://www.legislation.gov.au/Details/F2016L00426>

The Bendigo Mine experience illustrates how tonal noise variances, regardless of the noise levels being within Guidelines, can have a profound effect on residents health. The reports and how the sound of laden ore trucks coming up from the Mine Void every 6 minutes, 24/7, created so much distress due to the tonal variances. Residents demonstrated impaired cognition and judgement. It wasn't until after a concerted campaign of calls to authorities, and to overnight 'on call' mine staff, that an EPA representative attended the site and experienced what nearby residents had spoken of. Change was immediate, and the operations were required to significantly reduce operating hours, enabling residents to have some sleep.

And noise from the Keysbrook Mine in WA had such a profound effect on nearby Residents that the EPA conducted an Inquiry, publishing the results in Dec 2018. (Keysbrook Mineral Sands Mine – Inquiry Under Section 46 of the Environmental Protection Act 1986 to Amend Ministerial Statement 810 Report 1627 December 2018) .

That inquiry cited “ Noise characteristics such as impulsiveness, modulation or tonality may be intrusive or dominant to receivers. Where noise emissions are found to exhibit those characteristics, regulation nine provides specific decibel adjustments to be imposed Keysbrook Mineral Sands Mine”

Animals, such as cattle dogs, have highly attuned hearing. “Several studies suggest that prolonged exposure to loud noises can cause hearing impairment or even total loss in humans. Because the auditory systems of humans and dogs are similar, noise levels that damage human hearing may have similar adverse effects on dogs. Despite the similarities, dogs are able to detect sounds ranging in frequency from 40 Hz to 50 kHz, while humans can hear up to only 20 kHz. That suggests dogs may be even more at risk of noise distress than people experiencing the same environments.

Exposure to hazardous noise levels can not only cause hearing damage but lead to behavioural and physiological responses, such as a suppressed immune system, insulin resistance, cardiovascular disease and intestinal problems (Coppola et al., 2006).” <https://extension.purdue.edu/extmedia/VA/VA-18-W.pdf>

For the farm animals themselves, as outlined in Slovak J. Anim. Sci., 47, 2014 (2): 111-123, there are significant and adverse stress reactions with animals exposed to prolonged noise and at a physiological level.

“The most obvious effect is a general stress reaction with higher secretion of ACTH giving an increase of adrenocortical hormones in the blood (Burrow et al., 2005). Reactions occur in the circulatory system and in the gastrointestinal motility via the sympathetic nervous system. Other effects are sleep disturbances, changes in the glucose metabolism of the liver, changes in the enzymatic activity of the kidneys, and an increase of eosinophils percentage in blood, and immunosuppression (Algers et al., 1978). “ (pg115)

“Indeed, cattle, with an auditory range between 25 Hz and 35 kHz, can detect lower pitched sounds than other farm species (Heffner and Heffner 1993). Dairy breeds are more sensitive to noise than beef breeds (Lanier et al., 2000). “

[http://www.cvzv.sk/slju/14\\_2/8\\_Broucek.pdf](http://www.cvzv.sk/slju/14_2/8_Broucek.pdf)

Parris, K. M., and A. Schneider 2008. Impacts of traffic noise and traffic volume on birds of roadside habitats. *Ecology and Society* clearly identified the issue with increased noise and ecology.

“Traffic noise could affect bird populations in a number of ways. Acoustic interference from noise could hamper the detection of song by conspecifics, making it more difficult for birds to establish and maintain territories, attract mates, and/or maintain pair bonds (Reijnen and Foppen 1994, Habib et al. 2007, Swaddle and Page 2007). This, in turn, may reduce breeding success in noisy roadside habitats. When begging for food, nestlings may need to call louder to elicit the desired response from their parents (Leonard and Horn 2005), thereby increasing the energetic cost of obtaining food and potentially decreasing fitness. High levels of traffic noise may also interfere with the detection of alarm calls such as those signaling the presence of predators, which could lead to higher rates of predation. “

<https://www.ecologyandsociety.org/vol14/iss1/art29/>

The weather conditions used in modelling are one dimensional, and don't account for specific prevailing wind conditions. I.e. speed and direction. The Fingerboards, high on a plateau, can be very blustery. Gale and Strong Wind Warnings are common, particularly at specific times of the year. Temperature is cited at 10 deg. celcius but much colder conditions are common in winter. 1013.3 millibars is also used.

This aligns with “Normal pressure at sea level is 1013.3 millibars or 29.92 inches of mercury.” <https://kestrelinstruments.com/blog/how-barometric-pressure-influences-winter-fishing/#:~:text=It's%20typically%20expressed%20in%20millibars,weather%20is%20on%20the%20way.>

*The modelling is limited and fails to provide calculations of the impacts of temperature inversion on sound transference over distance.*

The WHO is very clear, with maximum noise levels before sleep is impacted cited as “indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events. Lower levels may be annoying, depending on the nature of the noise source.”

Pg 58 of the WHO document is also very specific about sleep disturbance. “If the noise is not continuous, LAmax or SEL are used to indicate the probability of noise induced awakenings. Effects have been observed at individual LAmax exposures of 45 dB or less. Consequently, it is important to limit the number of noise events with a LAmax exceeding 45 dB. Therefore, the guidelines should be based on a combination of values of 30 dB LAeq,8h and 45 dB LAmax.

To protect sensitive persons, a still lower guideline value would be preferred when the background level is low. Sleep disturbance from intermittent noise events increases with the maximum noise level. Even if the total equivalent noise level is fairly low, a small number of noise events with a high maximum sound pressure level will affect sleep.”

<https://www.who.int/docstore/peh/noise/Comnoise-4.pdf>

I'd also check out the EPA website as the new Act is in place, and it will have info re noise in it.

## **Dust**

Worth googling to get the full spiel. **It was a study ...**

PII: S0003-^878(96)00134-2 INHALATION AND RETENTION OF THORIUM DUSTS BY MINERAL SANDS WORKERS G. S. Hewson Department of Minerals and Energy, 100 Plain Street, East Perth, WA 6004, Australia INTRODUCTION Heavy mineral sands consisting of ilmenite, rutile, zircon and monazite, have been mined and processed in Western Australia since 1956. The industry is a significant one; in 1995 it mined 37.4 million tonnes of sand and processed 2.6 million tonnes of heavy mineral concentrate to produce 2.1 million tonnes of the individual mineral sands, at a value of \$550 million. A specific occupational health concern associated with this industry is radiation exposure arising out of the presence of thorium and, to a lesser extent, uranium with all the heavy minerals. Monazite, a rare earth phosphate, is radiologically the most significant mineral, containing typically between 5 and 7% thorium and 0.1 and 0.3% uranium. Although monazite is a low volume product, comprising only about 0.5% of total mineral sand production, it tends to preferentially concentrate in airborne dust because it is softer than the titanium and zirconium bearing minerals. This is of particular concern during the processing of mineral sands because the minerals are subjected to a variety of vigorous physical treatment processes, such as screening and magnetic, electrostatic and gravity

separation. Without the application of appropriate dust control technology, considerable airborne dust (and consequently radioactivity) concentrations may be experienced by workers who operate and maintain the separation plant. While the presence of radioactivity in this industry has been long appr

Elevated levels of microscopic dust leave residents concerned <https://www.abc.net.au/news/2019-08-26/elevated-dust-levels...> About dust at Moronbah in Qld

Again, google this to get the full info MELBOURNE METRO RAIL PROJECT ENVIRONMENT EFFECTS STATEMENT INQUIRY AND ADVISORY COMMITTEE MMRA TECHNICAL NOTE TECHNICAL NOTE NUMBER: 059 DATE: 26 September 2016 PRECINCT: All Precincts EES/MAP BOOK REFERENCE: EES Technical Appendix H (Air Quality Assessment) SUBJECT: Response to the 'Matters for further consideration and/or clarification' request dated 12 September 2016 (iii) Silica NOTE: 1. This Technical Note has been prepared with the assistance of AJM to respond to issues raised by the Inquiry and Advisory Committee ("IAC") in the 'Matters for further consideration and/or clarification' request dated 12 September 2016. 2. For ease of reference, this Technical Note sets out each relevant request made by the IAC followed by a response from MMRA. Request: 3. The IAC has requested: Advice about the assessment of potential risk to human health posed by respirable crystalline silica, including: a) evidence regarding likely silica **content of rocks across various weather profiles**. Response: 4. Over the course of the geotechnical investigations for Melbourne Metro, petrographic studies were undertaken on samples of rock and soil recovered from boreholes. The petrographic studies seek to estimate the proportions of the various minerals forming the rock or soil. Crystallin