Lesson 18: Paddock Loggers are used to Delete High Noise Data

The Bald Hills Judge ruled that conclusions put forward by the wind farm's acoustician were "patently absurd".

Because
The Judge determined MDA made …

> "*patently absurd conclusions that it was quieter at both properties after the wind farm started operating*".   [Uren 2022]

Why?
Because MDA deleted data.

How?
Because MDA used intermediatory loggers or paddock loggers as a method of deleting the data.

…. They also did a whole lot of other stuff like, not supplying the data to the plaintiffs, and diminishing the significance of individual night noise data.

What about the Peer Review?

The wind farm's peer reviewers agreed with the use of paddock loggers or intermediatory loggers.

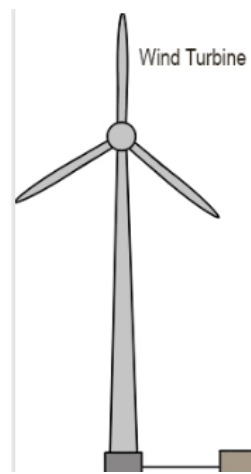They claimed that these alternative loggers provided a more accurate measurement of the noise at the houses.

This was their argument in court.

This was how they justified deleting the data.

And this is one reason why they lost the case.

Here's a Paddock Logger at Bald Hills.

It looks innocent, but it was used against the neighbours.

Paddock Loggers

The wind farm will say the noise in the paddock is more representative of the noise from the turbine.

They say the noise in the paddock is the "true" turbine noise and the loud noise at the house is due to other extraneous noises.

They use the noise data from the paddock to justify deleting high turbine noise at the house.

Their simplistic argument claims the difference between the noise in the paddock and the noise at the house is due to rustling leaves on the trees or insects near the house.

Paddock loggers are used to claim compliance.

Their ploy is to manipulate the data and engineer graphs to show compliance.

Here's Paddock Loggers on a Map

The paddock loggers are strategically placed between the houses and the turbines.

This is deliberate.

It seems their intention is to delete high noise data at the houses once the wind farm starts up.

Here's an Intermediate Logger, or the EPA's so called "Alternative Monitoring Point"

Strategically placed so that the turbine noise logged by the microphone is screened by the large shed.
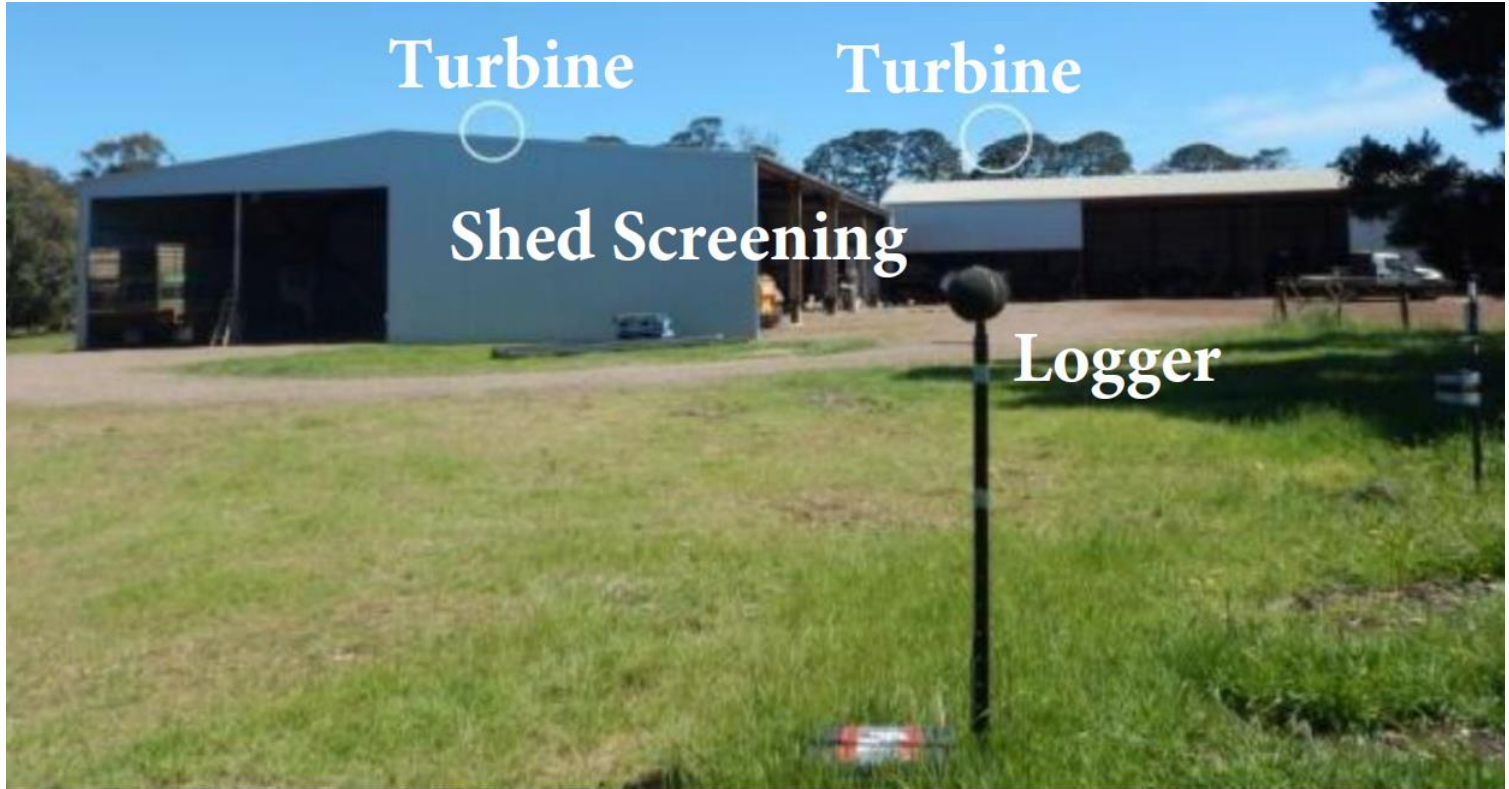
The wind farm's simplistic and absurd theory is flawed because it does not consider the torch beam effect or the atmospheric conditions affecting the movement of noise across the land.

Wind turbine noise shoots out from the spinning blades like a torch beam.

This torch beam of noise is then impacted by the atmospheric conditions of temperature inversion and wind shear.

The design of the house can also direct wind turbine noise onto the bedroom wall.

The torch beam effect

Wind turbine blades create a wake of pulsating air that spirals upwards and outwards behind the blades.

Shown clearly hear in the video.
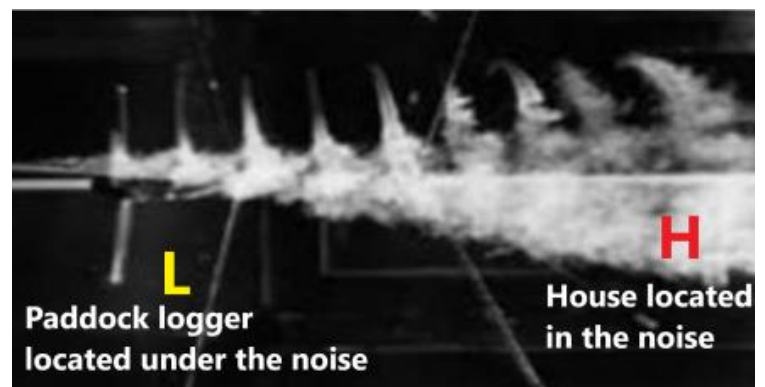
https://youtu.be/cRVB2i6ZWOU

The pulsating air is forced out with direction, like a torch beam or ray of sound.

The taller the turbines the greater the torch beam effect.
The torch beam of noise waves impacts homes many kilometres away.

Paddock loggers, located under the torch beam can miss the noise emitted from a turbine.

Temperature Inversion

Normally the air on the ground is warmer than the air above the ground, so air travels upward into the sky.

But on cold, frosty, still mornings, the ground is colder than the air above it.

This is called temperature inversion.

When noise hits the warm air it is refracted downward.

Temperature inversion causes the torch beam to bend down towards the houses.

So the torch beam of noise from the turbines forced up and out over the paddocks hits the warm layer of air and bends back down towards the ground to the houses.

COOL AIR ALOFT

WARM LAYER (Inversion)

SOUND WAVES

NEAR-SURFACE COOL AIR
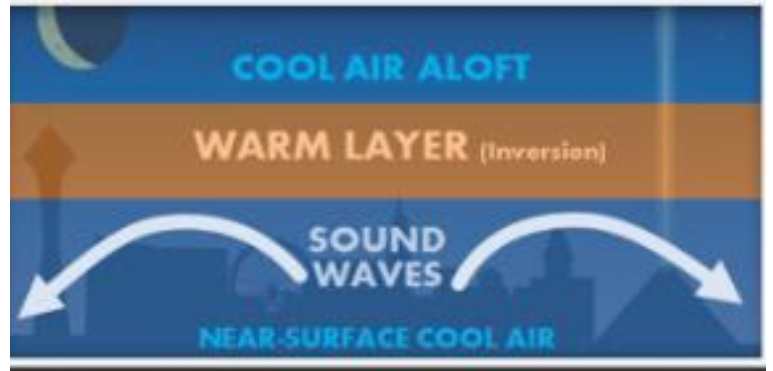
Wind Shear

Normally wind is slower closer to the ground and faster above the ground.

That's why turbines are tall to capture the fast-flowing air above the ground.

But wind shear effects can cause the air to bend back down towards the houses.

Wind shear is a common atmospheric phenomenon occurring at any level where layers of air have different velocities.

The wind shear refracts (bends) the noise.

The torch beam of noise directed out from the turbine (noise source), will be affected by wind shear and bend, like a banana, downward towards the house.

wind

source

shadow
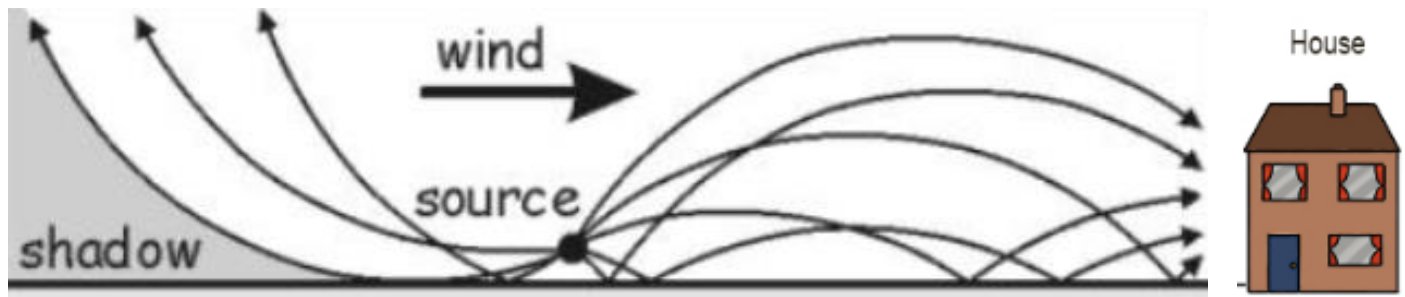
House

House design

Certain house designs can amplify the noise hitting the bedroom wall.

In an L-shaped house, the noise between the two verging walls reflects causing an amplification of sound.

If one of these walls is a bedroom, a person trying to sleep will be impacted by the amplified noise.

This amplification of noise at the bedroom wall can only be measured using a noise logger in proximity to the house.

A paddock logger does not pick up this amplification of noise caused by the design of the house.

Source

Direct sound

Listener

Wall Reflections