

WCX3B – Noise and Diesel Emissions

April 2021

Noise – Health effects



- Temporary or permanent hearing loss (i.e. noise induced hearing loss)
- Tinnitus constant ringing in the ears
- Trouble sleeping
- Negative psychological effects
- Irritability

Noise – Controls



- Use quietest tool/plant/process that is suitable for job
- Use plant with enclosed cabins where possible
- Build enclosures around noisy plant where possible (ventilation fans)
- Do audiometric testing on workers
- Training/awareness
- Use signage to inform workers of hazard (and hearing protection requirement)
- Wearing hearing protection when required (mandatory for anyone entering tunnels)
- Fit test hearing protection (when workers use disposable hearing protrection, not required if using moulded hearing protection)

Diesel Emissions – what are they?



Diesel Emissions include both gas and particulate components

- Gas components include carbon monoxide, carbon dioxide, nitrogen monoxide, nitrogen dioxide and may also include hydrogen sulphide and sulphur dioxide
- The particulate component includes a complex mixture of chemicals referred to as Diesel Particulate Matter (or DPM)
- Individual DPM particles are too small to see with the eye, but can be visible as a haze if allowed to build up

Diesel Emissions – Health effects



- The gaseous components of diesel emissions (particularly carbon monoxide) can be immediately dangerous to life or health
 > we must exercise caution when using diesel plant in areas with limited air
- Gaseous components can also cause lung/eye irritation
- The particulate component of diesel emissions (i.e. DPM) is known to cause long term lung damage and lung cancer if exposure is not controlled
 - Particulate respirators (such as the disposable P2 respirators used on this project) do filter out diesel particulate matter from the air, but not the gaseous components

Diesel Emissions – Controls



- Use electric plant/ tools where possible
- When diesel plant must be used, use high tier diesel engines (Tier 3 or higher)
- Use low sulphur fuel
- Restrict amount of diesel powered plant in each area
- Use ventilation to dilute diesel emissions and provide fresh air
- Use scrubbers to remove diesel particulate from air
- Use enclosed plant with filtration systems where possible
- Turn off diesel plant \rightarrow do NOT leave diesel plant idling underground
- Use VPMs to direct traffic and get diesel plant to where it needs to go efficiently
- Operate enclosed plant with doors closed and windows up
- Training/awareness
- Emissions testing of diesel plant and gas monitoring of air
- Wear particulate respirators in tunnels (mandatory in tunnels)