

DISASTER RECOVERY – HEALTH RISKS FROM BIOLOGICAL AGENTS

The 2011-2012 Canterbury earthquakes caused widespread deposits of liquefaction silt over a wide area. Soil, silt or liquefied material in some areas was likely contaminated with sewage and/or stormwater due to the rupture of underground services.

Silt in residential areas is likely to be found around and under dwellings and other buildings. Most silt will not be contaminated, but all silt should be treated as if it is contaminated as it is not possible to determine where contamination has occurred. Overall, the risk of ill health from contaminated silt is likely to be very low.

■ Bacteria, viruses and parasites

There is a potential risk of ill health from bacteria, viruses and parasites from sewage. It is thought that these can live in wet silt or wet environments for many months.

The main health hazard when working with contaminated silt is contracting bacterial gastro-intestinal illnesses that can cause abdominal cramps, severe diarrhoea and sometimes headaches, fever and vomiting. These include: E.coli, salmonella and campylobacter.

Other potential health hazards include skin infections, leptospirosis and viral illnesses such as hepatitis.

■ Mould and fungi

Moulds, fungi and some bacteria thrive in musty and wet conditions. These can be found where water has leaked into houses from damaged roofs and tiles, windows and gutters. They can also be found where wet silt has been in contact with house structures, such as wooden floors, piles or where dampness has entered wall cavities.

Moulds and fungi produce tiny particles called spores. These can easily become airborne and be inhaled, especially when mouldy material is disturbed (for example, when pulling gib from walls or digging around wooden piles), or in dusty and windy environments.

Some moulds can produce toxins that may be a risk to health. Moulds and fungi can cause a hacking cough, respiratory problems (such as shortness of breath or wheezing), nose or throat irritation, nasal and sinus congestion, hacking, eye irritation, allergic reactions, skin rashes/irritation and worsen pre-existing asthma.

Workers will be most at risk from bacteria from oral ingestion, facial splashes or from direct contact with skin, especially broken skin. However, it must be stressed that the risk of acquiring a health problem from silt or fungi/moulds is likely to be very low.



Figure 1: Interior of a Christchurch house affected by mould. This photograph was taken approximately eight months after the February 2011 earthquake.

Photo supplied by Robyn Carter: The Ambling Rambler
<http://robyncarter.blogspot.co.nz/>

■ How to keep safe

To minimise harm from bacteria, viruses, moulds and fungi:

- Keep time spent in damp attics, cellars, sheds, or inside/under houses where silt, moulds or fungi may be present to a minimum.
- Avoid direct contact with silt, especially if wet, and avoid areas contaminated with mould or fungi. Never splash in pools of water, even if it looks clean.
- Use appropriate personal protective equipment (PPE), including full-covering disposable overalls, waterproof gloves, gumboots and a respirator (face mask). A P2 or P3 particulate face mask suitable for biological aerosols should be used.
- Never eat, drink, smoke or bite nails whilst carrying out any work where contact with silt, moulds or fungi is likely.
- When taking breaks, remove PPE, wash hands and/or use hand sanitiser before eating, drinking or smoking.
- Ensure that the area is adequately ventilated by opening windows and doors when working inside buildings.
- Consider using a fresh air blower and trunking (ducting) if working in poorly-ventilated spaces both inside and outside buildings.



- After work is completed, always take a shower, place dirty overalls carefully in a separate bag to avoid cross-contamination and wash these separately from other clothes in hot water and plenty of detergent.
- If you have contact with silt, fungi or moulds at work and feel unwell, seek medical advice at the earliest opportunity and tell the doctor about your work.

■ Additional requirements if wearing or using PPE

PPE only minimises the user's exposure to airborne contaminants - it does not prevent the user from exposure and potential harm. Employers are required to take all practicable steps to ensure that the work environment is safe, and the use of PPE over other methods that may eliminate or isolate atmospheric contaminants from employees is not recommended.

However, if the employer has determined that PPE has to be used, either on its own or as part of a combination of other hazard controls, other duties are required to ensure that the PPE is used most effectively. These include:

- ensuring that the PPE is the most appropriate for the task, environment and contaminant(s)
- providing training to employees so that they can fit the PPE correctly, understanding that facial hair prevents a proper seal of the respirator to the face, how to clean, store and care for the PPE, and when to change disposable parts of the PPE (such as respirator filters) so that the PPE continues to function as required
- ensuring that employees wear or use the PPE appropriately and when required
- monitoring the employees' exposure to the hazard, to ensure that it is not excessive or beyond the means of hazard controls
- taking all practicable steps to obtain employee consent to monitor their health in relation to the hazard.

If employees are required to wear or use PPE, they are legally required to wear or use it.

■ Further advice

Further advice is available from:

- Community and Public Health: phone 03 379 9480
- Ministry of Business, Innovation and Employment-Labour Group: phone 0800 20 90 20

■ Further information

- Advice for working with sewage-contaminated silt and soil:
<http://www.dol.govt.nz/quake/contaminated-silt.asp>
- Risks to health from moulds and other fungi:
<http://www.osh.govt.nz/order/catalogue/517.shtml> (number 17)
- Safe clean-up of decomposed food:
<http://www.dol.govt.nz/quake/cleaning-up-after-the-earthquake.asp>
- Confined spaces:
<http://www.dol.govt.nz/quake/confined-spaces.asp>

