

## **Moanataiari: Questions and Answers on Lead Exposure**

### **What is the Ministry of Health doing about the health risks for Moanataiari residents?**

The Ministry of Health is working with the Waikato DHB's Medical Officer of Health to provide expert advice and information. The Ministry is using toxicologists, epidemiologists and public health medicine specialists to assess the potential risks and provide advice on how to avoid exposures to toxic substances. The Ministry has provided advice for people to take action to reduce their exposures to the toxic chemicals that are present in the soil. This advice is available on the Thames Coromandel District Council website and in the pamphlet *Arsenic and Your Health*, which was provided to residents and is available from the District Health Board, Council offices and local Moanataiari outlets. It is also available on the Ministry's website <http://www.health.govt.nz/yourhealth-topics/environmental-health/arsenic-and-health>

### **What is the Waikato District Health Board doing to help residents?**

The Waikato District Health Board's staff, including their Medical Officer of Health and other public health staff, are working with the regional and district councils to assess the risks for residents and are providing advice to concerned residents. The Medical Officer of Health attends the Governance Group,, to provide independent advice and is also working with General Practitioners, nurse practitioners, hospital staff, pharmacists, school and early childhood centre staff and others to discuss the potential risks and people's concerns and to advise on how these can be managed to protect people's health.

### **Why is the Ministry of Health not doing a survey to see if people are exposed?**

The Ministry recommends that anyone who feels unwell, is concerned about possible symptoms or feels they may have significant exposure should visit their GP. However, any biological tests will only show recent exposures to arsenic and lead. If residents have been following the public health messages since November 2011, then there is expected to be only low levels of any exposure to lead or arsenic from living on the contaminated land.. Any poisoning from contaminated land (eg lead, arsenic poisoning) is required to be reported to the Medical Officer of Health. All test results will be checked by the Medical Officer of Health..

Once the final soil testing results are available it will be possible to consider whether there would be benefit from a survey involving biological testing of people living in Moanataiari. Biological tests would give information only about recent exposures, and not historic or chronic exposures.

## **Questions and Answers about Lead**

### **What is lead?**

Lead is a metal that occurs naturally in the Earth's crust. It is rarely found naturally as a metal but is usually combined with two or more other elements to form lead compounds.

### **Where does lead come from?**

In addition to its natural occurrence, lead may come from a number of sources. These include old paint, some industries, for example battery manufacture, and old plumbing fittings. With the removal of lead from petrol in 1996, the main source of non-occupational exposure to lead in New Zealand is lead-based paint on and around houses built before 1970, but particularly before 1945. On many older houses, the old paint may still be in place, painted over or flaking off. When paint is removed, the lead in it may settle in nearby dust or soil.

In Moanataiari, waste rock and mine tailings were used to reclaim land and this soil has been found to contain relatively high levels of lead in some locations. For residents, the risk from lead is from eating contaminated food or putting contaminated objects, including fingers, in the mouth. Breathing contaminated dust may make a small contribution to exposures; lead absorption through skin is not a concern (only organic lead is absorbed through the skin eg the tetraethyl lead that used to be present in petrol).

### **Why are young children at greater risk of getting lead poisoning?**

Infants and preschool children in contact with lead-contaminated dust or soil or flaking paint are particularly at risk of developing lead poisoning. This is because they often put objects (such as toys or fingers) into their mouths that may be contaminated with dust or soil. Young children absorb more of the lead they take in than older children and adults. Some children will eat soil (known as 'pica') and so take in higher amounts of lead.

### **Are adults at risk?**

The highest levels of lead in adults occur in some occupations such as painters and as a result of some hobbies such as indoor small bore rifle shooting and lead lighting. In the home, adults may be exposed to lead by breathing in dust from old paint removal from older houses. Not washing lead-contaminated hands properly before smoking or eating may cause exposure to lead.

### **How does lead leave the body?**

Once in the body, lead may pass into the bloodstream or be excreted via faeces and urine. The rate of absorption depends upon many factors, not least the chemical and physical form of lead and the person's nutritional status. Once in the bloodstream, lead tends to accumulate in hard tissues such as bones and teeth, from which it may be slowly released back into the bloodstream. Up to 90 percent of body lead burden may be found in bones.

### **How does lead affect children?**

Contact with low levels of lead may not cause any obvious illness. However low lead levels can affect the developing brain and may impair young children's development and later performance at school. High levels of lead can cause symptoms such as vomiting, stomach pains, difficult sleeping, constipation and loss of appetite. It is important to know, however, that there are many causes of these symptoms other than lead. If untreated, very high blood lead levels can result in more serious problems and lead to seizures, brain damage or even death. Poisoning of such severity is most unlikely from routine exposure to contaminated soil but could theoretically happen if a child eats soil from an area with a particularly high level.

If you are concerned that your child has been affected, see your doctor.

### **How does lead affect adults?**

The lower blood lead levels generally found in adults may have a small effect on blood pressure. As with children the early stages of lead poisoning are non-specific and affect the gastrointestinal and nervous systems. In adults, symptoms of lead poisoning can include mood changes (such as depression or irritability), memory impairment, sleep disturbance, headaches and tingling and numbness in fingers and hands. Other symptoms can include lack of appetite, nausea, diarrhoea, constipation, stomach pains and weight loss. Symptoms may eventually develop in the blood, kidneys, bones, heart and reproductive systems and may, at very high levels, cause death.

### **How does lead affect an unborn child?**

Lead can be carried to the unborn child through the mother's blood. Therefore, exposing the mother to lead through repainting, through her work or through hobbies involving lead exposure (eg lead lighting, indoor small bore rifle shooting) may affect the baby while it is still being formed. Exposure to lead can cause premature birth or low birth weight as well as later problems with brain development.

### **How can you protect your family from lead poisoning?**

You can reduce any health risk by reducing the amount of soil and dust from mine tailings that you or your children swallow. Here are some simple steps that you can take.

- Do not let children, especially young children, play on mine tailings. The soil and dust can stick to their hands and toys and can be swallowed when they put them in their mouths.
- Prevent young children from putting mine tailing sand or soil in their mouths.
- Do not put mine tailing sand in your child's sand pit.

- Wash your hands before eating and sleeping.
- Wash young children's hands frequently, particularly before eating.
- Wash dummies and toys frequently, especially those used outside, to remove soil and dust.
- Do not eat home-grown fruit and vegetables, and especially do not feed them to young children, if you do not know whether the garden soil is clean fill. Wait until further information on the level of contamination is available and the risk can be assessed. If you do choose to eat home-grown fruit and vegetables, then thoroughly wash all produce that may be contaminated with soil, and peel the skin off root vegetables. Households must make their own decisions about this
- Wash family pets often.
- Remove footwear before going indoors to avoid carrying soil dust indoors, especially if your household includes babies or young children.
- Mop and dust often. Mop and dust with a damp cloth. Wet-dust floors, ledges, window sills and other flat surfaces at least once a week.
- Using a vacuum cleaner or broom may spread dust around. If using a vacuum cleaner only a vacuum fitted with high-efficiency particulate air (HEPA) filters should be used.
- Do not eat fish caught from areas with mine tailings, which may be in the waterways.
- If mine tailings are in a children's play area, cover them with a layer of clean soil and grow grass over the top. Keep it watered during dry weather if possible.
- Cover mine tailings with soil and plants (especially groundcover plants) to reduce dust and stop direct access by young children.
- Make sure your child has a good diet. Calcium and iron can help prevent your child's body from absorbing lead. Include at least two servings of milk products (equivalent to two glasses of milk) and one serving of lean meat, chicken or fish (equivalent to one small piece) each day.
- Take special care with home renovations. If renovating older houses, seek advice. If the house was built or repainted before 1970, assume the paintwork is lead-based, unless a test shows that it is not.

### **Can I eat home-grown fruit and vegetables?**

It is hard to know how much lead is absorbed by fruit and vegetables that are grown on mine tailings (or soil containing mine tailings). Because of its limited mobility in soil, little lead is absorbed through the roots of plants. However, soil physically adherent to harvested root crops may be ingested, if not fully washed off before eating. In addition, lead in air may deposit on leaves and other above-ground parts of plants; broad leafy vegetables are most likely to be affected. If you do choose to eat fruit and vegetables from your own or local gardens, they should be well washed before eating to remove surface deposits. If in any doubt, don't eat locally produced fruit and vegetables until more specific advice can be given.

### **Can I remove the contaminated soil?**

If you decide to remove mine tailings from your property, first contact your local council for guidance. There are restrictions on the disturbance of contaminated soils and controls on how these soils must be handled, moved and disposed of.

### **How is lead poisoning diagnosed?**

If you are concerned about your health, or that of your family, visit your GP. Lead poisoning is diagnosed by measuring the amount of lead in the blood. This test shows if you have been recently exposed to lead. Lead can also be measured in teeth or bones by x-ray techniques, but these methods are not widely available. These tests show long-term exposures to lead.

### **Can lead poisoning be treated?**

There is no drug treatment for low blood lead levels. However advice about how to reduce lead exposure and absorption of lead is given.

In certain situations if the blood lead level is very high a special treatment using a drug which binds to the lead may be advised by a specialist doctor (paediatrician or physician).

**Should everyone be tested?**

Testing everyone is not required. If you are unwell or concerned about possible symptoms you should discuss this with your GP. A survey involving biological testing of people living in Moanataiari could be considered once the final results of soil testing are available, as all these results would be needed to design an appropriate study. The tests would only give information about recent exposures, and not historic or chronic exposures. If residents have been following the public health messages since November 2011, then testing people for lead (or arsenic) is unlikely to show anything from living on contaminated land. Elevated blood lead levels in Thames residents have in the past been at similar levels to those reported from other parts of the Waikato DHB's area.

**Questions and Answers about Arsenic**

If you are concerned about exposures to arsenic, please see *Arsenic and Your Health*: <http://www.health.govt.nz/yourhealth-topics/environmental-health/arsenic-and-health>