



**REPORT ON NICKEL DUST SWABBING AND SOIL SAMPLING UNDERTAKEN IN ESPERANCE
BETWEEN APRIL AND AUGUST 2007
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Local properties were visited in the month of April, June, July and August 2007 and a range of dust samples were obtained from inside and outside the premises as well as a range of soil samples. The homes were selected as part of the DOH lead monitoring program (please refer to the dust report for lead in homes) and nickel sampling was also undertaken to determine its presence in homes. Sampling was undertaken by the Chemistry Centre with analyses also undertaken by the Chemistry Centre.

One hundred and four internal dust swabs were taken inside homes of 25 premises from a variety of surfaces including cupboards, shelves, appliances, windows, venetians and door frames. Nickel content of swabs ranged from non-detect (i.e. <0.005) to 0.4 micrograms per square centimetre ($\mu\text{g}/\text{cm}^2$). Of the 105 internal swabs, 13 were obtained from the surfaces of children toys. Nickel was detected on one toy surface and this was a sample from the top of a toy refrigerator located outside the house. The concentration of nickel was found to be $0.29 \mu\text{g}/\text{cm}^2$.

In terms of dust from roof cavities, 7 samples were obtained from 6 premises. Roof dust was collected, weighed and analysed for nickel. One property with two samples of roof dust collected from two areas of the roof space had a nickel concentration of 150 and 5400 mg/kg, respectively. The remaining dust samples collected from 6 premises had nickel dust content ranging from 29 to 850 mg/kg.

Forty-seven swab samples from 17 premises were obtained from a variety of locations on or outside dwellings including windows, doors, beams, cubby houses and other outdoor structures. Nickel content in these swabs ranged from <0.005 to $13 \mu\text{g}/\text{cm}^2$. Out of the sample, those with higher nickel concentrations were swabbed from an external ledge that is only accessible by a ladder, a garage door and along the track of a sliding door of a balcony.

No health guidelines have been established in Australia or internationally on levels of nickel in household dust. The nickel swab results do indicate that dust containing nickel is present in the environment.

Thirty-one soil samples were taken from 15 residential properties. The areas sampled included vegetable gardens, sandpits and driveways. The nickel content in the soil ranged from a concentration of less than 0.2 to 19 mg/kg. These results were compared with the *Health Investigation Levels (HILs-Category A)* published by the National Environmental Protection Council (NEPC, 1999). Screening levels are used to initially assess contamination and prompt further investigation if they are exceeded. The A category indicates that they are screening levels for residential properties and are based on a dose of a particular contaminant that a young child may be exposed to on a daily basis throughout life, without appreciable health risk. The soils results indicate that the nickel content were well below the HILs-A of 600 mg/kg, therefore there is no appreciable risk to children from daily contact with the soil.

Soils were also collected from three doormats of one premise. The results indicated that the nickel concentrations were 5, 46 and 92 mg/kg. There is currently no health guidelines established for metal content in soils obtained in this manner in Australia or internationally. In the absence of a guideline, the use of the NEPC HILs-A for soil gives an indication that nickel concentrations are well below the HIL-A of 600 mg/kg, hence there is no appreciable risk to children from daily contact with the soil.



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The Department of Health recommends that in order to prevent dust exposure to occupants in homes, particularly young children, it is important that any sources of dust are cleaned in and around the home. Advice on cleaning dust in homes can be obtained from the following DOH information leaflet on cleaning lead dust from houses in Esperance (please refer to the webpage http://www.health.wa.gov.au/envirohealth/home/docs/Managing_lead_dust_in_and_around_the_home.pdf and DVD supplied by the Department).

References:

1. The Western Australia Department of Health (DOH). 2007. Managing possible lead dust in and around the home. Online [Available]: http://www.health.wa.gov.au/envirohealth/home/docs/Managing_lead_dust_in_and_around_the_home.pdf [Acquisition date: 11/12/2007].
2. National Environment Protection Council (NEPC). 1999. National Environment Protection (Assessment of Site Contamination) Measure 1999. Online [Available]: http://www.ephc.gov.au/nepms/cs/con_sites.html [Acquisition date: 10/12/2007].