Lead issue update

Proposed health risk assessment

Initial testing by agencies for lead and nickel contamination in Esperance is to be followed up with a comprehensive health and ecological risk assessment.

The assessment will be jointly commissioned by the Department of Environment and Conservation (DEC) and the Department of Health (DOH).

An independent environmental specialist will be contracted shortly to assess any risks to the community and the environment from emissions from transport and shipping operations to date, and to recommend any clean up measures that may be required.

The first step will be a review of recent sampling and existing environmental assessment, management and compliance reports relating to the port.

A gap analysis will then be done to identify any additional information required and a detailed plan for any additional work will be drawn up.

The risk assessment itself will include a thorough analysis of exposure pathways, human and ecological receptors, and factors that may influence the severity or duration of exposure.

Assessment and clean up criteria will be developed and recommendations will be made to address any unacceptable human health or environmental risks, including mitigation measures and remedial options.

The community will be involved in the process and the methodology will be consistent with national and State risk assessment guidelines.

The State Government is committed to ensuring that any potential risks in the Esperance township are assessed and managed, in consultation with the community.

DEC officers use a hand-held dust monitor to test air quality at the Esperance port.

Esperance response coordinator appointed

Environmental health specialist Michael Jackson has been appointed to coordinate the Government's response to lead and nickel contamination in Esperance.

Mr Jackson, a health consultant and formerly a senior DOH officer, is now based in Esperance for an initial two-month appointment. He is working out of the Shire of Esperance offices, and can be contacted on 9071 0626.

Mr Jackson was recently appointed as a Director of the Esperance Port Authority Board, but has stepped down to be able to make a broader contribution. Mr Jackson will be speaking with community groups and Esperance residents and advising Government agencies how best to respond to the needs of the community.

Public information day – 30 June, Esperance Civic Centre

Another public information day will be held on 30 June at the Esperance Civic Centre. Officers from the DOH, DEC, the Department of Employment and Consumer Protection and the Chemistry Centre will be available to talk about the latest results and answer questions between 9:00 am and 5:00 pm. The information day will be advertised in the local newspaper closer to the event.

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Inside

A copy of the DOH brochure, *Managing possible lead dust in and around the home* is also enclosed.

Lead issue update

Latest blood test results

The DOH has reviewed 2568 blood test results from Esperance residents, with 31 showing lead blood levels above 10 micrograms per decilitre.

The DOH continues to provide individual advice to people with levels 10 micrograms per decilitre and above, and is carefully monitoring the 72 children under five years with levels of five micrograms per decilitre and above, to help with investigations and to look at ways to reduce further exposure. Lead in the samples of adults comes from a variety of different sources, not exclusively from the Magellan mine.

People should call 9071 0891 for enquires about blood lead testing which remains available at the PathWest laboratory at Esperance Hospital. A table of results follows.

Cumulative lead blood levels for Esperance community members
19 March to 15 May 2007

Age group (years)	Number of tests	Average lead level (micrograms per decilitre)	Number greater than 10 micrograms per decilitre * (values)
0 to 5	313	3.2	6 (1 sample at 11 micrograms per decilitre, 2 samples at 12, 1 sample at 13, 1 sample at 20, 1 sample at 22)
5 to 10	228	2.4	0
10 to 20	287	1.8	0
20 to 40	504	2.0	3 (1 sample at 15 micrograms per decilitre, 1 sample at 16, 1 sample at 18)
Over 40	1236	3.1	22 (4 samples at 10 micrograms per decilitre, 6 samples at 11, 4 samples at 12, 3 samples at 13, 1 sample at 14, 1 sample at 16, 2 samples at 18, 1 sample at 21)
Total	**2568**	**2.7**	**31**

** World Health Organisation (WHO) guideline*

What happens if my test results are abnormal?

The DOH, in consultation with local General Practitioners, is actively following up all individuals with a blood lead level of 10 micrograms per decilitre and over.

The most vulnerable group to lead are children under five years of age, and therefore the DOH has also been following up children in this age group with a lead level of five micrograms per decilitre and over. This includes a discussion to address any concerns, a home visit, the identification of any additional possible source of lead exposure, and advice on reducing further exposure to lead and re-testing.

There have been discussions in the scientific literature about the effect of blood lead levels under 10 micrograms per decilitre on young children. In response to these concerns Professor Alison Jones, the Professor of Medicine and Clinical Toxicology at the University of Newcastle accepted an invitation from her clinical toxicology colleagues to visit Esperance.

During her visit, she met with support groups, local General Practitioners and concerned parents. Professor Jones is considered a leading expert in this field, and has extensive experience in treating children and adults with long and short term exposure to lead.

Further updates will feature an independent contribution from Professor Jones on the risks to health posed by low level short term exposures to lead.

The most important management for anyone with an elevated blood lead level is to minimise exposure to lead in the environment.

What about testing for nickel?

Urinary nickel testing is used in the mining industry for people working with nickel. It is used to monitor ongoing exposure to nickel associated with work conditions. High levels recorded in workers lead to actions to reduce their exposure to nickel – there is no specific medical intervention or treatment required.

Urine tests for nickel are not commonly used in communities for the following reasons:

1. In communities, exposure to nickel is intermittent and at far lower levels than that experienced by mine workers.
2. Unlike lead, nickel is not stored in the body. Nickel that is absorbed into the body (in soluble forms) is excreted by the kidneys into the urine and this measurement reflects exposure over the past 1-2 days.
3. In addition to ingestion from rainwater tanks in Esperance other sources, for example foods such as coffee and chocolate, will contribute to elevated levels. Smoking is an additional major source of exposure and nickel urine excretion in smokers is higher than in non-smokers.
4. Levels of excretion of nickel by the kidneys (in the urine) is not a useful predictor of whether the person will experience any health effects as this depends on the chemical form of nickel more than the absolute amount of exposure.
5. The toxicity of the usual forms of nickel in the environment is very low. Large amounts need to be consumed before any clinical effects are seen.

Given the concerns and the unique circumstances in Esperance, the DOH collected a sample of urine tests to address community concerns and the results are presented below.

106 urine samples have been received, with a minimum level of <1 and a maximum of 48 (average=10.5 nmol/mmol creatinine). 39 (37%) exceeded the reference range of less than 10 nmol/mmol creatinine. The levels seen in Esperance, though higher than those in the sample used to calculate the reference range, are well below those found in people working in the nickel industry and who do not show any short or long term effects. It is not anticipated that there will be any negative effects on the health of residents at the levels found in testing. There was also no correlation (or relationship) between the level of nickel in rainwater tanks and the level of nickel in the urine of residents.

Further urinary nickel testing in the community would not be useful and is not necessary. The results do not allow us to make any recommendations for the medical treatment of individual people. The most important intervention is to prevent ongoing exposure to nickel from the environment.

Rainwater tank testing, emptying and cleaning

The DOH has reviewed 1336 rainwater test results, with 363 exceeding the Australian Drinking Water guideline level for nickel and 266 exceeding the level for lead.

The DOH advises that people should not drink their rainwater unless it has been tested and the results indicate that it is safe to do so.

Emptying and cleaning of rainwater tanks and the section of guttering leading to the tanks has now commenced. Residents are invited to contact the Esperance Port Authority on 1800 880 798 during office hours to lodge their details. A contractor employed by the Port will visit each premises for an inspection and to provide further written information from the DOH.

There is no charge or fee to residents for this service. A table of the latest results of rainwater testing results follows:

Rainwater Tank Sample Results
9 March to 5 May 2007

Metal	Nickel	Lead
Total number of samples	1336	1336
Average concentrations of total samples	0.024	0.009
Number that exceeded guidelines*	363	266
- Average of exceeding samples	0.074	0.038
- Range of exceeding samples	0.021-0.95	0.011-0.4
- 90% of exceeding samples have values less than:	0.14	0.09

** Australian Drinking Water Guideline value for Nickel is 0.02 mg/L*
** Australian Drinking Water Guideline value for Lead is 0.01*

Environmental sampling at the beach next to Esperance port.

Fish sample results

The DOH advises that it is safe to eat fish caught near the Esperance Port as more than 40 fish caught in the area show lead level results well below the recommended limits. Only one herring showed a lead level four times above the limit of 0.5 mg/kg. The DOH is not concerned about this one-off result because of the amount of fish the average person eats.

The DOH advises people not to eat crustaceans or other shellfish taken from around the area, as a precautionary measure.

Minimising exposure to lead and nickel dust

Results of the DOH swab survey show that homes closest to the Port have been impacted the greatest.

The area of primary impact includes:

- Esperance Townsite, bounded by Harbour Road and Brazier Street;
- West Beach (East of Connolly Street);
- Nulsen, South-East corner flanked by Pink Lake Road, Rowse Street and Symons Street; and
- Sinclair.

The DOH strongly recommends residents and businesses within this area to follow the cleaning procedures set out in the attached *Managing possible lead dust in and around the home* brochure.

Residents and businesses outside of this area should consider adopting these procedures, particularly where young children may reside.

Additional steps which can assist in reducing exposure to lead and nickel dust around the home:

- Do not drink rainwater unless it has been tested and meets the Australian Drinking Water Guidelines.
- Thoroughly wash all fruit and vegetables before consumption.
- If eating outdoors, place food on a clean plate or napkin, never directly on an outdoor surface.
- Always wash your hands after engaging in outdoor activities.
- Wipe soil off shoes, or remove shoes, before entering the house.
- Regularly wet mop or wipe all floors and surfaces in the home and vacuum carpets.
- Regularly wet wash pets and children's toys.
- Maintain a healthy diet that is high in fibre, calcium and iron and low in fat.

Please refer to the attached brochure for detailed advice on appropriate lead cleaning procedures.

Removing the lead stockpile

Magellan Metals is developing a plan for approval to export the stockpile of about 9000 tonnes of lead carbonate currently held in a shed at the Esperance port.

DEC, DOH and the Department of Consumer and Employment Protection (DOCEP) have had preliminary discussions with Magellan Metals and received the company's draft plan to export the lead carbonate. Agencies have asked the company to provide more information before the plan is submitted as a final proposal. This information is expected to be received shortly.

Once a formal proposal has been lodged, DEC will seek public input and advice from DOH and DOCEP. A public comment period, with details on how to make a submission and the deadline, will be advertised at that time.

The proposal will need to ensure the material is handled and transported in a way that does not pose any health or environmental risk to the community. In the meantime, the Pollution Prevention Notice issued by DEC in March to prevent the delivery and shipment of lead carbonate from the Esperance port remains in place.

New industry regulation officer closer

The appointment of a regulation and licensing officer for Esperance is a step closer.

DEC advertised on 18 April for an officer to manage industry regulation in the Esperance and Ravensthorpe area. Applications closed on 7 May and following the selection process, it is hoped an officer will be available for appointment as soon as possible.

Conditions set for next nickel load

Facilities at the Esperance port used to load nickel will be upgraded before further shipments of the ore can proceed.

DEC issued three environmental field notices at the last nickel loading in early May, making future shipments conditional on the upgrade, which is designed to reduce the potential for dust to escape and prevent spillage into the harbour.

The improvements required in the field notices were to:

- shroud or enclose the tail drum and tensioner assembly for conveyor CV3 to eliminate or minimise dust generated while loading ships;
- shroud the gap between the wharf and the ship under the boom loader so that nickel does not enter the ocean; and
- to repair the gantry of conveyor CV2 to make it waterproof.

The Esperance Port Authority is making these improvements, which will be ready before the next nickel shipment is scheduled in June and stringent monitoring of the loading will continue.

The movement of lead into and out of the port was prevented in March, but following consultation with DOH, the same action has not been taken for nickel.

DOH's interim agreement for the continuation of nickel exports is based on more stringent monitoring requirements on the Port Authority by DEC, including deployment of officers, with the authority to cease operations wherever fugitive dust is detected.

Any information generated from the monitoring of shipments will be used to strengthen the future management of the process.

A priority for DOH is for a full health risk assessment to be undertaken on the export of nickel products from the port, and for the procedures and plant to be upgraded as required so this activity does not create a potential health risk to the community in the future.

During the nickel shipment in early May, a small amount of the material did go into the water. It was not sufficient to stop the loading but it demonstrated that improvements were needed and resulted in an environmental field notice.

Dust monitoring equipment in place during the last nickel ship loading in May.

Soil tests clear schools, playgrounds

Soil testing in Esperance in April, at sites including schools and park playgrounds, has detected lead levels well below health and environmental trigger levels.

DEC officers collected 35 soil samples from 19 sites covering parks, kindergartens, primary schools, high schools, vacant lots in residential areas and one industrial area adjacent to the port.

The highest lead reading recorded of 380 milligrams per kilogram (mg/kg) came from bare soil beside the 'quarantine station' next to the port and railway line. The trigger level for further investigation of such sites under the commercial/industrial health standard is 1500 mg/kg for lead.

The trigger levels for residential areas and parks and schools are naturally much lower, 300 and 600 mg/kg respectively. The highest reading recorded at these sites was 88 mg/kg and the majority were less than 10 mg/kg.

Nickel levels were also low, with the exception of three areas within 200 metres of the entrance to Esperance port. The environmental trigger level is 60 mg/kg for nickel and the human health trigger level for residential land-use is 600 mg/kg, and again the majority of samples recorded were less than 10 mg/kg.

Further sampling of soils across Esperance may be required as part of the human and ecological risk assessment of the town that DEC is commissioning jointly with DOH.

Public process for licence review

DEC has begun a comprehensive review of the Esperance Port Authority's environmental licence.

The review will address what the Department believes are inadequacies in a number of areas, including licence conditions for monitoring.

Initial community input into the process has been sought and the review process includes further stakeholder consultation and an appeals period when the new licence is issued, probably at the end of the year.

The findings of the current Parliamentary inquiry into the cause and effect of lead pollution in the Esperance area, and the Government's response, will be key inputs into the review.

The first step of the review process is an environmental assessment, which is expected to be distributed for public comment in October. The assessment outcomes will be used to draft a new licence, which will then be advertised and open for further comment.

While the current licence is not due to expire until late 2008, evidence from the Port Authority's last annual monitoring report and from the bird death investigation shows a mid-term review is required.

DEC will advertise opportunities for public comment through the media and direct advice to key stakeholders, and on its website at www.dec.wa.gov.au.

Independent review of DEC functions

The Department has committed to a full review of its audit and inspection process by an independent auditor.

The review has been established to assess DEC policies and practices with a view to finding ways to improve how the department fulfils its monitoring obligations. The terms of reference of the review have been finalised and a number of potential auditors have been short listed for the role. An appointment will be made as soon as possible.

Further information

Mr Michael Jackson, who is coordinating the Government's response to lead and nickel contamination in Esperance, can be contacted on 9071 0626. Further information is also available on the DOH website at www.health.wa.gov.au and DEC's website at www.dec.wa.gov.au

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www.dec.wa.gov.au www.health.wa.gov.au

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