

Rec'd 12 Sept 2008

WorkCover Response to Additional Questions on Notice

1). Currently which departments within the NSW Government have a responsibility for issues relevant to the broad theme of nanotechnology (e.g. research and development; regulation; consumer protection; education)?

New South Wales departments that share responsibility for issues relating to nanotechnology include:

- Department of State and Regional Development
- NSW Health
- Department of Environment and Climate Change
- New South Wales Office of Fair Trading
- WorkCover NSW

2). A number of submissions have made recommendations that relate to the support and future strategic direction of scientific research and development and commercialisation of science in NSW. Does the government see merit in these proposals:

The establishment of a Ministry which, or a Minister who, has overall responsibility for research, science, innovation and development and that such a Ministry should be supported by the creation of a NSW Science Advisor/Chief Scientist? (University of New South Wales)

The development of a long-term strategic plan to address critical research infrastructure (University of New South Wales)

Direct State funding for critical research infrastructure for nanotechnology to allow NSW universities to compete with their counterparts in other States (University of Newcastle).

The development of a NSW Nanotechnology Strategy that addresses the specific needs of NSW industry and business? (University of Newcastle)

That NSW should select particular niche nanotechnologies to support through research and commercialisation (University of Wollongong).

That research and research infrastructure be made accessible to industry and that industry be made aware of what capacity exists (Protech Pty Ltd).

WorkCover supports a whole of government approach, which fosters the safe and responsible development of the nanotechnology industry while ensuring appropriate protection for workers. The suggestions proposed all highlight the need for a coordinated approach to nanotechnology, which WorkCover believes would be most effectively undertaken at a national level. For example, rather than establishing a specific Ministry in NSW to address issues relating to nanotechnology, WorkCover's preferred approach is to establish a NSW agency working group that could link and report to a national body such as the Australian Safety and Compensation Council.

The National Nanotechnology Strategy brings together industry, research bodies, the community and governments to assist in addressing issues associated with the development of nanotechnology in Australia. WorkCover supports the National Nanotechnology Strategy, which includes specific initiatives to facilitate a whole of government approach to nanotechnology. WorkCover believes that the National Nanotechnology Strategy provides a strategic approach that will assist in the development of the nanotechnology industry while addressing any safety implications.

3). Page 3 of the NSW Govt submission identifies a lack of industry and economic statistics relating to nanotechnology as 'an important issue'. What is required to improve the collection of this information? Should NSW consider making it mandatory for businesses who use or create nanomaterials in their manufacturing process to notify this fact?

Mandatory reporting, or the creation of a simple registry may assist WorkCover and other relevant agencies build an understanding of industry activity. However, implementation of mandatory reporting would need to consider the costs and benefits of such as system for workers and industry, in line the requirements of the New South Wales Better Regulation Office. WorkCover believes that any such mandatory reporting system would be most effective at the national level, which is in line with WorkCover's support for a whole of government approach to nanotechnology.

If a mandatory reporting system were put in place then WorkCover would be interested in companies who use, manufacture, transport or dispose of nanomaterials. WorkCover does not currently have the legislative power to require companies involved with nanotechnology to report on their activities.

WorkCover notes that the United Kingdom initiated a voluntary reporting scheme which sought a range of information from companies involved with nanotechnology including material source, manufacturing processes, measurement techniques, toxicological information and chemical properties of the nanomaterials. According to a review of the scheme, the Council for Science and Technology noted that it had been met with a poor response, with only three companies providing information.

WorkCover is undertaking a number of activities to further develop it's understanding of industry activity in New South Wales including:

- Monitoring international and Australian patents for new nanotechnology applications;
- Identifying companies in Australia and New South Wales that manufacture and sell nanotech products or components; and
- Identifying and monitoring products in Australia and New South Wales that include nanotech components.

The Australian Safety and Compensation Council has outlined a program of work to be undertaken by mid 2009 that will involve the assessment of nanomaterial research, manufacturing and use in Australia. Building a stronger understanding of the workplace safety practices of companies involved in nanotechnology in Australia will

facilitate the development of guidance material and dissemination of best practices across the industry.

4). The NSW Govt submission at page 4 notes there is a need and opportunity to coordinate the toxicology research capacity within NSW – possibly through a network to create assessment capacity relevant to research and industry sectors in NSW.

Can you elaborate on the network idea – would it be intended to research the toxicity of specific nanomaterials currently being researched in NSW with a view to commercialisation?

The Committee notes other networks such as NanoSafe and affiliations such as the ARC Centre of Excellence in Functional Nanomaterials cited at page 8 of your submission – would any new network be “competing” with these?

○ WorkCover agrees that there is a considerable need for further research into toxicology and exposure levels. Research of this nature is currently occurring nationally and internationally, so it is important that any research undertaken in New South Wales uses a coordinated approach to enable the sharing of this research and to ensure research is not duplicated.

It may be beneficial to establish a working party in New South Wales to facilitate the coordination of toxicological research and other activities. A working party with membership sought from both government agencies and research bodies could assist in developing a more coordinated approach to research in New South Wales and promote the sharing of research findings. The establishment of a specific working party in New South Wales may further streamline the coordination of research between the state and national levels.

○ **5). The CSIRO submission (page 19) notes that new nanotechnology products that have been researched and developed with safety as a key component are more likely to be accepted by consumers. Do you agree, and what steps can the State government take to promote such research/development?**

WorkCover's mission relates to workplace safety not consumer end-use safety. The exception is where this impacts upon workplace safety, for example in relation to transportation. WorkCover supports the responsible and safe development of nanotechnologies for the purposes of ensuring the safety of workers.

WorkCover recognises the considerable need for further research into toxicology and exposure levels. WorkCover is working with the Office of the Australian Safety and Compensation Council to develop a program of work to be undertaken to address the occupational health and safety implications of nanotechnology.

6). A frequent comment in literature on nanotechnology is that within government funding generally (both here and overseas), research on toxicology and health and safety issues receives a small percentage of overall funding.

Should government funding for nanotechnology include a requirement for health and safety research when the safety of the nanomaterial has not yet been confirmed?

WorkCover believes there is a considerable need for further research into the occupational health and safety implications of this technology. In particular, research in the area of toxicology, exposure and measurement of nanoparticles should be a priority.

Nationally, \$3.2 million has been allocated via the Office of the Australian Safety and Compensation Council to implement a nanotechnology occupational health and safety program, as part of the National Nanotechnology Strategy.

7). Is the DSRD promoting or planning to promote the potential of nanotechnology to industries, particularly in regional areas? What existing networks are there that can be used for this purpose?

Not applicable to WorkCover

8). The Australian Government submission (p12) notes the establishment of the Nanotechnology State and Territory Committee (NSTC). Can you give an indication on how the deliberations of this committee are directing or influencing State activities with respect to nanotechnology?

Not applicable to WorkCover

9). What impact could the Australian Government's Review of the Australia's National Innovation System have on NSW activities with respect to nanotechnology?

It would be difficult to predict the impact of the Australian Government Review of the National Innovation system on WorkCover's activities regarding nanotechnology at this stage. The Review Panel will provide a Green Paper outlining policy options to the Government on 31 July 2008, which should provide further insight into the potential impact on nanotechnology.

In regard to activity in New South Wales, WorkCover strongly advocates using a whole of government approach and will continue to work with the Australian Safety and Compensation Council and other jurisdictions to facilitate this. A whole of government approach, which is supported by the National Nanotechnology Strategy, will assist in ensuring a consistent approach by both state and national jurisdictions.

To this end, WorkCover has joined the newly established Australian Safety and Compensation Council Nanotechnology Working Group and is also seeking representation on the Standards Australia Nanotechnology Committee.

The Australian Safety and Compensation Council, which WorkCover is represented on, is working on a number of different activities including developing a national

position paper on regulating nanomaterial in Australian workplaces, which will be discussed by Australian Safety and Compensation Council members in June 2008.

In addition to this, the Office of the Australian Safety and Compensation Council attend meetings of the:

- Standards Australia NT-001 Committee for Nanotechnology;
- International Organisation for Standardisation Nanotechnologies Committee; and the
- National Health and Medical Research Council Advisory Committee on Health and Nanotechnology

10). Should the NSW Government develop an easily accessible website with information on all aspects of nanotechnology for the NSW public, similar to the NanoVic website?

In line with WorkCover's support for a whole of government approach to nanotechnology in Australia, WorkCover believes it is most appropriate for a website of this nature to be developed at a national level. The development of a national website to provide information on all aspects of nanotechnology for the Australian public would help reduce duplication and confusion.

WorkCover will publish information on it's website, or use other methods as appropriate, to convey information to industry and the public regarding WorkCover's policy and the development of any guidance materials as it is developed.

Last year, WorkCover published a report on the occupational health and safety implications of nanotechnology on the WorkCover website – www.workcover.nsw.gov.au.

11) Page 4 of the submission notes that, until more is known about the health safety and environmental risks of nanotechnology, the Government supports industries adopting the ALARA precautionary approach.

How exactly does the Government support, encourage or assist industries in adopting this approach?

WorkCover supports the 'as low as reasonably achievable' approach, which was agreed to by jurisdictions at the August 2007 Australian Safety and Compensation Council meeting, whilst efforts continue with research and development activities. The use of the 'as low as reasonably achievable' approach seeks to minimise worker exposure to nanomaterials. This approach is entirely consistent with the current New South Wales regulations and uses a hierarchy of risk controls (incorporating elimination, substitution, engineering controls, administrative controls and the use of personal protective equipment).

WorkCover is working proactively to develop networks with industry stakeholders in order to facilitate the sharing of information between industry and regulators (such as

the commitment to the 'as low as reasonably achievable' approach by jurisdictions and the Australian Safety and Compensation Council.)

The Australian Safety and Compensation Council is working on developing a national position paper on regulating nanomaterial in Australian workplaces, which is scheduled to be tabled at the Australian Safety and Compensation Council meeting in June 2008. This meeting will provide regulators with an opportunity to discuss the possible development of regulatory activity such as occupational health and safety standards, code of practice and/or guidance material, which would further support industry.

12) Page 6 notes that WorkCover will be identifying and monitoring both companies that manufacture and sell nanotech products and products that include nanotech components. Please describe how WorkCover will undertake this identification and monitoring?

○ **Once WorkCover has identified these companies will it visit/inspect these locations to conduct a preliminary inspection and offer advice?**

WorkCover is working proactively to develop networks with industry stakeholders in order to facilitate the sharing of information between industry and regulators. The intention of identifying and monitoring companies that manufacture and sell nanotechnology products is to further understand the activities of industry and identify ways WorkCover can support industry with advice and guidance.

WorkCover maintains a subscription to a patents alert notification database and is aware of companies with nanotechnology related patents. WorkCover also liaises with the NanoBusiness Forum in order to collect timely information about companies and their activities.

○ WorkCover believes that involvement with industry through mechanisms such as forums is an effective way of engaging and consulting with stakeholders. WorkCover representatives attend forums, seminars, networks and conferences, such as the Australian Nanobusiness forum and the International Conference on Nanoscience and Nanotechnology 2008.

WorkCover is developing internal capability to practically assist businesses through initiatives such as training for new inspectors. Training materials have been developed and the first programs were delivered to new Inspectors in January 2008 this year. WorkCover believes that this is the first program of its type anywhere in the world. The program will be reviewed and revised as required.

13). The Submission (p6) states: Any consideration of the provision of a regulatory environment in NSW that is specific to nanotechnology use should be consistent with currently developing international and national measures.' And that (p7) 'It is possible that regulations may be necessary to provide a level playing field and meet community expectations about safety, accountability and transparency.'

What possible regulatory actions could NSW take if it decided to act in advance, or independently, of the development of national measures?

WorkCover strongly advocates using a whole of government approach that supports the responsible and safe development of the nanotechnology industry, while ensuring appropriate protection for workers. A whole of government approach, which is supported by the National Nanotechnology Strategy, will assist in ensuring a consistent approach by both state and national jurisdictions. It is very unlikely that WorkCover would act in advance or independently of any national regulatory measures.

WorkCover's existing occupational health and safety legislation provides a framework for the nanotechnology industry to use to manage risks in the workplace. The occupational health and safety legislation applies to the regulation of all workplace risks and is designed to accommodate new and emerging technologies. The legislation supports a risk management approach that requires the identification of hazards, the assessment of these risks and ensuring the appropriate management of these risks including the ongoing review of the controls and risks.

WorkCover acknowledges that it is difficult to apply this legislation to nanomaterials because accurate and cost effective monitoring and measuring instruments, reference materials and testing methodologies are still being developed. Furthermore the risks cannot be fully assessed while these international standards are still being developed. Therefore, until more is known about the health and safety risks of nanotechnology, WorkCover supports the 'As Low As Reasonably Achievable' approach.

The 'as low as reasonably achievable' approach seeks to minimise worker exposure to nanomaterials. This approach is entirely consistent with the current New South Wales regulations and uses a hierarchy of risk controls (incorporating elimination, substitution, engineering controls, administrative controls and the use of personal protective equipment).

14). A number of submissions have called for the Committee to support a moratorium on the commercial use of nanotechnologies or commercial release of nanotechnology products until health and safety issues have been resolved. The question of a moratorium has been placed in the public arena - and may become one increasingly considered by members of the public, particularly in the absence of a formal counter argument.

Do you think that government at either the State or federal level should provide a public response to the question of the need or not for a moratorium for the information of the public?

WorkCover supports the responsible and safe development of the nanotechnology industry while ensuring appropriate protection for workers. WorkCover supports industry adopting the 'as low as reasonably achievable' approach to minimise the risk

of worker exposure to nanomaterials and does not support a moratorium on the development of nanotechnology in New South Wales or Australia.

WorkCover recognises the importance of engaging and involving the community and other stakeholders in ensuring the responsible and safe development of the nanotechnology industry. Consideration should be given to appropriate ways of addressing community concern and raising public awareness about the potential health and safety risks and benefits of nanotechnology.

Questions on Notice as Outlined in Uncorrected Transcript

1. The Hon. Melinda Pavey asked for access to the British Standard Institute standard referring to nanotechnology (page 11 of uncorrected transcript).

The British Standards Institute (BSI) has published a paper providing guidance on assessing risks and recognising uncertainties in the development, manufacture and use of nanomaterials, and developing and implementing an effective strategy to address and control these risks, which is available online - details are below.

British Standards Institute, *Guide to safe handling and disposal of manufactured nanomaterials*, December 2007, <http://www.bsi-global.com/en/Standards-and-Publications/Industry-Sectors/Nanotechnologies/PD-6699-2/Download-PD6699-2-2007/> (accessed 30 April 2008)

The BSI website (<http://www.bsi-global.com/en/Standards-and-Publications/Industry-Sectors/Nanotechnologies/>) has a number of other useful articles, for instance *Guidance on the labelling of manufactured nanoparticles and products containing manufactured nanoparticles*.

2. Reverend the Hon. Fred Nile asked for a list of companies in NSW (page 19 of uncorrected transcript).

WorkCover is undertaking a number of activities to further develop its understanding of industry activity in New South Wales including:

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- Identifying and monitoring products in Australia and New South Wales that include nanotech components.

There are a number of publically funded facilities in New South Wales with nanotechnology interests, most of which are based in universities and include:

- Australian Research Council Centre for Functional Nanomaterials (University of New South Wales and University of Western Sydney)
- Australian Research Council Centre of Excellence for Electromaterials Science (University of Wollongong)
- Centre for Quantum Computer Technology (University of New South Wales, Macquarie University and University of Sydney)
- Centre for Ultrahigh bandwidth Devices for Optical Systems (University of Sydney)
- Centre for Medical Radiation Physics (University of Wollongong)
- Condensed Matter Physics Department (University of New South Wales)
- Department of Physics and Advanced Materials (University of Technology Sydney)
- Electron Microscope Unit (University of Sydney)

- Centre for Plant and Food Science (University of Western Sydney)
- Nanoscale Organisation and Dynamics Research Group (University of Western Sydney)
- Institute for Nanoscale Technology (University of Technology Sydney)
- Institute for Superconducting and Electronic Materials (University of Wollongong)
- Intelligent Polymer Research Institute (University of Wollongong)
- Key Centre for Polymer Colloids
- Micro Electronics Research Group
- Microstructural Analysis Unit (University of Technology Sydney)
- Laboratory for Dynamics and Control of NanoSystems (University of Newcastle)
- Surface and Nanoscience Group (University of Newcastle)
- University of Sydney Molecular Electronics Group
- CSIRO Molecular and Health Technologies
- National Measurement Institute

Other public and private companies in New South Wales with nanotechnology interests include:

- CAP-XX
- Dyesol
- Peregrine Semiconductor Australia
- Protech Research Pty Ltd
- Lu Papi & Associates Pty Ltd
- Viridian

There are also a number of companies with their headquarters overseas that either supply nanotechnology products or conduct research that also have bases in New South Wales:

- BASF
- 3M
- DuPont
- Pfizer
- Nestle
- Heinz
- Bayer
- GlaxoSmithKline
- FH Faulding
- James Hardie
- Dulux
- Wattyl
- IBM
- Orica
- BP
- BHP-Billiton
- Rio Tinto

- Bluescope Steel Australia
- Monsanto
- Shell

Please note that this list may not include all companies involved in the nanotechnology industry.