

## Get more from your business with Life Cycle Assessment – Continued from Page 3

### 2. Assessing existing environmental implications

An LCA will provide you with an overall picture of the environmental impact your business or product is having. It can be used to identify key areas of good practice and areas where improvements or decisions need to be made.

### 3. Knowing your product better

By knowing the life cycle of your product a better understanding of the inputs, outputs and processes can be obtained. This can be utilised to identify key areas where resource use is extensive and where the key interest areas of your product lie. Through better product understanding, better cost reductions can be obtained.

### 4. As a decision making tool

LCA can be used as a decision making tool to identify the implications of

decisions before they are implemented. This is especially handy in the areas of off-setting greenhouse gases. An LCA can be used to explore the off-setting potential of business practices or process alterations. An LCA can be used to identify the off-setting potential for such questions as:

- What if we switch to green power?
- What if we recycle our waste materials?
- What if we introduce buy back schemes?

Benbow Environmental is exploring the specifics of Life Cycle Analyse and the benefits it can provide to our clients. To find out more contact our senior environmental scientist, Paul Spittle on (02) 9890 5099.

## Environmental Solutions Environmental Solutions found at the 2007 Safety Show

The Safety Show 2007 was held at Sydney Showground based at Homebush, Sydney Olympic Park. Benbow Environmental exhibited along with 322 other companies to provide information addressing ways to alleviate safety and environmental concerns.

The 2007 safety show was combined with the Sydney Materials Handling tradeshow. The combination of the two exhibitions allowed visitors to gain access to a wider variety of safety, occupational and environmental products and services.

The show attracted over 9,500 visitors and from post show feedback, 95% of attendees found a product or solution that suited their company's needs. Benbow Environmental found from show inquiries that occupational hygiene, occupational noise, asbestos and environmental management were our most sought after services.

Our stall was positioned on a corner stand, allowing greater visitor access. The main differences from our stand at the 2006 show was the impressive service banner and use of our promotional brochure package contained in a multi purpose Benbow Environmental bag. The key outcome for Benbow Environmental was the distribution of over 2,000 brochures and 500 promotional items. Due to the enthusiastic response to our promotional items, we will again be utilising these products at the 2008 Safety Show.

Benbow Environmental will continue to support this annual event as it promotes good safety and environmental practices in the workplace and allows access to innovative occupational and environmental information. Our staff strongly encourage you to set time in your schedule to attend this years exhibition in October.



Benbow Environmental's service banner used at the 2007 Safety Show.

## Earth Hours 2008 Sending a Serious Message About Global Warming

On Saturday 29th March 2008, businesses and individuals around the world turned off their lights for an hour to send a powerful message that we are serious about climate change. Benbow Environmental showed their support not only by signing up for the global movement, but encouraging our employees to sign up as individuals and our clients to sign up their businesses. As our office is closed on weekends, we hosted our own Earth Hour on Friday 28th March from 12 – 1pm by turning off our office lights.



**Benbow**  
ENVIRONMENTAL

## Benbow Environmental News Update Engineering a Sustainable Future for Our Environment

Issue 5 June 2008

### Inside this Issue

- What's new in GHG - greenhouse gases, carbon neutrality and energy efficiency
- Respirable quartz is nothing to sneeze at!
- Carbon neutrality – What does it really mean?
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- Environmental solutions found at the 2007 Safety Show

### Emissions Trading Update

Development of an Australian Emission Trading Scheme (AETS) is progressing quickly with the detailed design expected to be completed by the end of 2008 and implementation no later than 2010. An effective AETS should meet the following five tests:

- Be a cap and trade approach for international consistency;
- Reduce emissions by 60% by 2050;
- Provide incentives to invest in low emission technologies and renewable energy while ensuring Australian businesses remain competitive;
- Allow costs and benefits to be shared across the community; and
- Commence as soon as possible.

For full details, refer to [www.greenhouse.gov.au/emissionstrading/](http://www.greenhouse.gov.au/emissionstrading/)

### New On-line Carbon Calculator

Benbow Environmental has developed a carbon calculator that will be available on our website by the end of April 2008. The calculator is simple to use and has been specifically designed for businesses to estimate their greenhouse gas emissions and equivalent number of carbon offsets required to achieve carbon neutrality.

Of course, the number of offsets required to become carbon neutral can be minimised by implementing energy efficient initiatives and reducing your carbon footprint. We offer a number of assessments that focus on generating an action plan to reduce your greenhouse emissions. To find out more, go to [www.benbowenviro.com.au](http://www.benbowenviro.com.au)

### Free GHG Information Package

Get your **FREE** GHG information package and learn more about greenhouse gases, energy efficiency and carbon neutrality. Phone us on (02) 9890 5099 or go to our website: [www.benbowenviro.com.au](http://www.benbowenviro.com.au) and follow the links.

### Safety Show 2007 Business Card Competition Winner

Congratulations to Michael Cambridge of Railcorp who was the winner of Benbow Environmental's business card competition at the 2007 Safety Show. Michael won a dinner for two at Indulgence Restaurant in Parramatta.

### Team Benbow Grows...

The staff of Benbow Environmental would like to welcome new members Vicki Moore (Office Administrator), Raheleh Sehat (Graduate Environmental Engineer), Jay-ellen Wright (Graduate Environmental Engineer), Haysam El Hassan (Environmental Scientist) and Monica Contad (Receptionist) to the team. Also, welcome back to our Senior Environmental Engineer, Linda Zanotto who recently returned from maternity leave.

## What's New in GHG - Greenhouse Gases, Carbon Neutrality and Energy Efficiency

Carbon neutrality, carbon offsetting, carbon footprinting, emissions trading.... Confused by all the new environmental jargon? Benbow Environmental's GHG Information Package clearly explains what it all means, how it may affect your business and how we can assist your business in implementing a program that will improve your environmental performance and your competitive edge.

Climate change, global warming and the greenhouse effect are not a new phenomenon. However, recent developments in this area are fast becoming significant worldwide issues and are likely to affect the majority of businesses on a global scale.

**“Smart businesses have already taken on the carbon neutral challenge and are now offsetting their greenhouse gas emissions and increasing profitability...”**

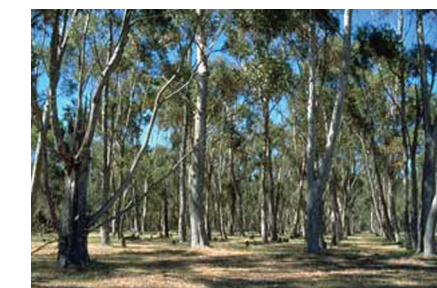
Benbow Environmental have developed this GHG Information Package to enable their clients to not only learn about GHG, but also to take the first steps in the race to become a carbon neutral business and to maintain or even improve their competitive position. Smart businesses have already taken on the carbon neutral challenge and are now offsetting their greenhouse gas emissions and increasing profitability. Becoming a carbon neutral business not only allows you to do your bit for the environment, but is also guaranteed to improve your business' bottom line by implementing an effective and ongoing GHG program in your workplace.

A GHG program can be as simple or as complex as your business can maintain within its financial and personnel resource constraints. Benbow Environmental's GHG team of experienced Environmental Engineers and Scientists can assist your business in implementing a GHG program catered to your specific needs.

Benbow Environmental's GHG Information Package contains a number of fact sheets, an application form and a basic training module as follows:

- Climate Change and The Greenhouse Effect Fact Sheet;
- Cleaner Production and Sustainability Fact Sheet;
- Carbon Footprinting, Lifecycle Analysis and Emissions Trading Fact Sheet;
- The Benbow Experience;
- Application Form; and
- Basic Training Module CD.

Contact Benbow Environmental's Senior Environmental Engineer, Linda Zanotto for your free copy on (02) 9890 5099.



New forests are a way to reduce carbon dioxide in the atmosphere



Industries are finding new innovative ways to reduce their greenhouse gas emissions.



**Benbow Environmental**  
*Engineering a Sustainable Future for Our Environment*

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## Benbow Environmental News Update

*Engineering a Sustainable Future for Our Environment*

### Respirable Quartz *is nothing to sneeze at!*

Environments that are frequented by individuals include areas such as – home, workplace and outdoor areas. These common areas have the potential to impact unexpectedly and cause minor or major symptoms to a person's well being due to exposure to chemicals or pollutants in the ambient air. A typical Australian cultural attitude is to cope with difficulties due to the cavalier attitude of 'She'll be right!', though this casual colloquialism endangers us and can result in avoidable accidents or exposure to hazardous conditions.

Time is a precious commodity for most and as such the focus tends to be on the immediate future. Consequently, as up to date chemical knowledge becomes available it forces us to consider our lack of forethought and past risky practices due to naivety or inefficient time management skills. Through our progressive technology, and advances of industrial process and medical research, the penny suddenly drops as to how foolish we were to expose ourselves to harmful situations. A harm we could have prevented in most cases by simply wearing a mask in the workplace.

Construction, mining, building material and glass manufacturers, agriculture, and foundry work are all occupations that are frequently at risk of dust and respirable quartz emissions. Operations that involve earth disturbing activities or cutting of construction materials force dust and quartz into the ambient air and breathing zone of a worker. <sup>①</sup> Fine particles of dust from silica are emitted into the circulating airstream and constant non-protected exposure results in accumulation within the lungs.

Silica is sand to most people, or the material used to make a computer chip. Many are unaware of the other uses or possible health side effects when in the form of a fine dust particle. Side effects are from accumulation, resulting in obstruction and calcification of lung tissues. Many occupational consequences are not researched or realised until the statistics build up and a common trend is observed. Statistics become the alarming evidence when medical research offers the link of the occupational exposure results and health side effects, demonstrating the perilous truth.

Companies or multi national corporations with large budgets can often afford a complete occupational management system. This involves implementing protocols to protect their employees, including periodic health employment checks and extensive occupational programs designed to identify hazardous operations or incidents occurring within their production. Smaller businesses may not be protected and have a tendency to only incorporate the minimal occupational protective measures due to the small profit margin constraints of their business. Productivity and budget is protected through OHS management by addressing site specific concerns.

National legislation and regulation advocates occupational safety within a workplace and ensures employees and employers participate collectively to adopt a comprehensive occupational health and safety program. These legislative documents outline responsibilities and considerations to provide protection and in the use of hazardous or potentially hazardous substances in the workplace. The Australian Safety and Compensation Committee is responsible for adjustments to the occupational health and safety criterion at a national level <sup>②</sup>. The government department web site updates the occupational limits in conjunction with research or changes in overseas criteria upon review to authenticate relevance.

The respirable quartz criterion has been revised on numerous occasions to reflect the present findings of medical or scientific data. Industry and employers subject to the contaminant exposure are required to comply with an 8 hour Time Weighted Average of 0.1mg/m<sup>3</sup> <sup>③</sup>. Occupational site sampling quantifies quartz exposure levels by gravimetrically capturing the airborne particles over minimum 4-hour period; to assess the amounts inhaled by a member of staff throughout the workshift. To maintain an accurate assessment of operators exposure to their breathing zone, the atmospheric sampling method and equipment is controlled by the AS 2985-2004: *Workplace atmospheres*

– *Method for sampling and gravimetric determination of respirable dust.* (Standards Australia 2004) <sup>④</sup> The respirable dust is particles with a diameter range of 0 to 2.5 micrometers, which accounts for 97% to 100% of respirable matter captured by the sampling method <sup>⑤</sup>.



*A static sampling location used when monitoring for respirable quartz*

Medical research and statistical analysis of morbidity data suggests that respirable quartz particles when inhaled can reach and accumulate in the respiratory system and lungs, and may cause varying adverse health effects. Medical data correlations depict silica exposure may cause Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis (TB), lung cancer, lupus, bronchitis, scleroderma and rheumatoid arthritis. The common systematic symptom of silicosis is scarring to the lungs and respiratory pathways, by accumulation of quartz particles as a result of calcified granulomas; other related complications are inflammatory responses and respiratory complications. Deposits in the respiratory system can be observed by initial symptoms of shortness in breath, cough, occasional chest pain, loss of appetite and minor fatigue. Early symptoms progressively develop into more severe side effects and, as a result from constant exposure, lead to further damage to the lungs. Severe symptoms that reportedly can occur are worsening of shortness in breath, cough and chest pains, weight loss, cyanosis (blue tinge to skin as result of lack of oxygen) and respiratory failure <sup>⑥</sup>. A medical practitioner can diagnose silicosis by performing a chest X-ray to verify lung damage. Therefore health surveillance and medical checks are necessary for industries where silica products are used or earth-moving operations are performed. <sup>⑦</sup>

Together, prevention, engineered control measures, periodic evaluation of work conditions, management of work practices and ongoing occupational training can eliminate respiratory side affects taking place within the workplace. <sup>⑧</sup>

Respiratory Personal Equipment (RPE) is regulated by standards such as AS/NZS 1715:1994 *Selection, use, maintenance of respiratory protective devices* (Standards Australia/Standards New Zealand, 1994) and AS/NZS 1716:2003 *Respiratory protective devices* (Standards Australia, 2003). A respiratory protection device is assigned a classification level whereby, depending protection needed, the efficiency of the device to absorb respirable dust and quartz is rated. A site may require the highest level of protection due to large dust contributions during production and therefore might apply a class 3 - filtering self rescue mask, which achieves only 0.01% of dust penetration through the device. <sup>⑨</sup>

Control measure options consist of mechanical methods or engineering controls such as automation, use of local exhaust ventilation at source of exposure, constant mechanical ventilation or production modifications by enclosing, isolating or segregating production line processes. <sup>⑩</sup>

Overall, employees and employers have shared responsibility to prevent occupational safety hazards and management policies should reflect and continually enforce this emphasis by regular training in the workplace.

#### References

1. UK Health and Safety Executive (HSE) Fact Sheet, 'Silica dust – guidance on risk and enforcement' sim 3/2004/02 Version :2
2. Australian Safety and Compensation Committee Website <http://www.ascc.gov.au>
3. Standards Australia, AS2985-2004: Workplace atmosphere – Method

### Carbon Neutral – *What does it really mean?*

At Benbow Environmental, we believe that becoming “carbon neutral” is more than simply offsetting your business' carbon emissions. We look for solutions to reduce carbon emissions to minimise the number of offsets that need to be purchased.

#### “Simply calculating your footprint and buying offsets is not the answer”

Carbon neutral is a relatively new term that can be diverse in its meaning. Lets look at a few definitions of carbon neutral to grasp a basic understanding of what it's all about...

To Benbow Environmental, carbon neutral occurs when the “Total carbon emissions from a business or individual are equal to the amount of carbon they remove from the atmosphere”. Put in another way, the Will Steger Foundation's Global Warming 101 website defines carbon neutral as “a term applied to individuals, businesses, or organisations whose practices contribute zero carbon dioxide to the atmosphere”.

These definitions imply that a carbon neutral individual or company has no net effect on carbon emissions in the atmosphere. This is often achieved by calculating the annual carbon emissions (or footprint) and then buying carbon offsets equivalent to the carbon emitted. Carbon offsets schemes can invest your money in planting forests, renewable energy or energy abatement projects. Many on-line carbon calculators estimate carbon emissions and then determine the dollar amount you need to pay to essentially have the equivalent amount of carbon removed from the atmosphere. Here at Benbow Environmental, we take a different approach.

Simply calculating your footprint and buying offsets is not the answer. It avoids the real problem, which is the generation of emissions. Reducing emissions through initiatives such as lowering energy use, becoming water wise and minimising waste makes sense because it removes part of the problem (the

for sampling and gravimetric determination of respirable dust. (Standards Association of Australia, Sydney)

4. Standards Australia AS/NZS 1715:20003 Selection, use, maintenance of respiratory protective devices (Standards Association of Australia, Sydney)

5. Standards Australia AS/NZS 1716:1994 Respiratory protective devices (Standards Association of Australia, Sydney)

6. CDC Website: <http://www.cdc.gov/niosh/silfact1.html>

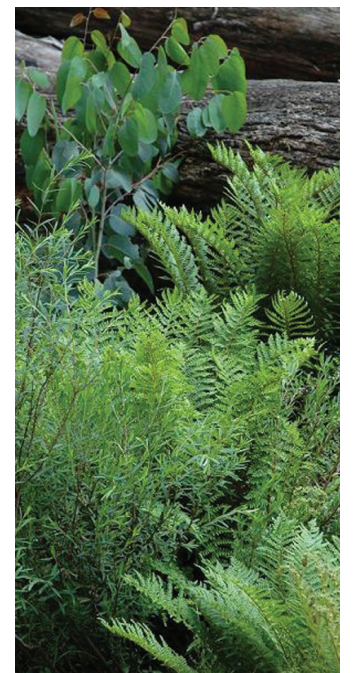
7. Workers Health Centre Website: <http://www.workershealth.com.au/facts014.html>

emissions) and essentially reduces the need to purchase offsets and energy. This is the ideal path to becoming carbon neutral.

The Benbow approach to carbon neutrality has 5 steps:

1. **REDUCE** - Reduce your energy use by undertaking simple energy saving practices;
2. **ENHANCE** - Enhance energy efficiency by installing more energy efficient equipment and devices;
3. **IMPROVE** - Improve your process by fixing any leaks, reducing water, resource use and waste;
4. **GO GREEN** - Purchase renewable energy; and
5. **OFFSET** - Offset any remaining emissions through an accredited offset provider.

With environmental regulations becoming more rigid, it won't be long before reducing your greenhouse emissions becomes mandatory. Benbow Environmental offers a number of assessments that will lead your business toward becoming carbon neutral. To find out more, go to [www.benbowenviro.com.au](http://www.benbowenviro.com.au)



*Carbon neutrality is more than simply buying offsets to plant forests...*

### Get more from your business *with Life Cycle Assessment*

#### What is Life Cycle?

A life cycle is defined by ISO 14040 as “consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal”.

#### What is A Life Cycle Assessment (LCA)?

A Life Cycle Assessment (LCA) is defined by ISO 14040 as “compilation and evaluation of the inputs and outputs and the potential environmental impacts of a product system throughout its life cycle”.

#### How can an LCA help you?

A life cycle assessment can be beneficial in a number of key areas:

#### 1. Gaining market advantage and improving corporate image

By analysing the life cycle of your product a complete idea of the environmental implications associated with the product can become clear. The analyses can be utilised to apply for specific “green” labels that can be used in an extensive marketing campaign to better promote your product against the competition. For instance the Greenhouse Friendly logo can be attained to advertise your product as carbon neutral. In order to gain Greenhouse Friendly certification an LCA is required to provide evidence on the carbon neutrality of your product. In most cases, the LCA will identify areas of improvement from which an action plan can be developed to reduce carbon emissions and the remaining emissions can be offset to achieve carbon neutrality. *Continued on Page 4.*