



Benbow Environmental

News Update

Spring 2012

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ABOUT BENBOW ENVIRONMENTAL

Benbow Environmental is a 100% Australian-owned professional environmental consultancy firm with over 29 years experience. We work closely with our clients and government authorities to deliver complete, cost-effective and sustainable solutions. We specialise in:

- Noise
- Air quality and odour
- Dangerous goods
- Development applications
- Environmental auditing
- Environmental management systems and plans
- Risk assessments
- Asbestos and hazardous substances
- Carbon footprint and greenhouse gases
- Cleaner production

With offices in Sydney, Brisbane, Wollongong and Hong Kong, our dedicated team of qualified engineers and scientists are waiting for your call.

Changes to NSW Key Environmental Legislation

Do you own or operate a facility within NSW?

Is your facility a holder of an environment protection licence (EPL)?

If you answered yes to both these questions, you will need to ensure that your facility complies with new requirements under NSW environmental legislation.

In February 2012, changes to a key piece of New South Wales' environmental legislation, the Protection of the Environment Operations Act, 1997, came into force. The purpose of the changes is to improve the way pollution incidents are reported and managed. Licensees are required to prepare pollution incident response management plans for each licensed activity in accordance with the regulations and have to include:

- Procedures to be followed in notifying a pollution incident;
- Detailed descriptions of actions to be taken immediately after the incident, by the holder of the EPL or occupier of the premises, to reduce or control any pollution; and
- Procedures to be followed for co-ordinating with authorities, and action in combating the pollution caused by the incident.

It is considered an offence not to comply with the new requirements. Penalties associated with this offence are up to one million dollars for a corporation and \$250,000 for an individual.

Other requirements in relation to preparing pollution incident response management plans are summarised in point form below:

- The plan must be kept at the premises to which the EPL relates;
- The plan must be tested in accordance with the regulations; and
- If a pollution incident occurs, the plan must be implemented immediately.

Some of the other changes to the legislation that came into force over February and March 2012 are summarised below:



- Anyone causing a pollution incident will be required to report immediately to the relevant consent authority. This replaces the previous requirement of reporting "as soon as practicable" under Section 148 of the Act. (Commenced 6 February 2012.)
- EPL holders will be required to publish results of all monitoring required by their licence that is undertaken after 31 March 2012 on their company website. If the licence holder does not maintain a website, the data must be provided free of charge to any person who requests a copy. (Commenced 31 March 2012.)
- The EPA has new powers to place a condition on a licence requiring a mandatory environmental audit. (Commenced 6 February 2012.)
- The EPA and Ministry of Health are able to require any person they reasonably suspect of causing a pollution incident to pay for an analysis of human health and environmental risks arising from the incident. (Commenced 6 February 2012.)

For more information on other changes to the legislation, visit the NSW EPA website at: <http://www.environment.nsw.gov.au>

If you require assistance in preparing or modifying your facility's Emergency or pollution incident response management plan, contact: **Linda Zannotto:** lzanotto@benbowenviro.com.au.

The Hidden Mysteries of Contamination Beneath the Surface of your Site

Investigations into the presence of contamination on your site can be fraught with errors of judgment. Dick Benbow explores a more accurate approach to ensuring the accuracy of contamination investigations.

Where to start?

Site history and site knowledge, especially from long-serving employees, can give an insight to previous operations. Site knowledge is supported by receiving previous ownership and aerial photographs, however these are insufficient to be able to be certain of where any of the hotspots of contamination may reside.

Classic causes of contamination are where liquid storage tanks and pipelines are buried. Pits and areas where the concrete flooring is exposed to chemicals are other pathways for contaminants to reach subsoil which can eventually affect groundwater.

As an engineer who has worked in manufacturing and a wide range of process industries over a career that now spans over 40 years, I have witnessed many practices that were once considered acceptable and observe at many sites fill that has been disposed to level the land.

In a recent study in Western Sydney of an area where the land's title, site history and aerial photographs had no association with contaminating activities, it was essential that a more thorough soil inspection be undertaken to determine the presence of detrimental soil contamination.

Frequently boreholes are used in a grid based on the area of the site, with the aim to achieve a 95% upper confidence limit. However the grid that results is typically 20–25 m hole spacing. This means that a 100 mm diameter hole is used over 20 m or so to find a hotspot – luck must play a big part then!

The method we use is to dig inspection trenches up to 1.5 m long, 400 mm wide and to a depth of 3 m. After this depth, if greater depth of investigation is needed we then use drill holes in the area where our trenches have found contamination.

The trenches provide a larger area of each inspection point – 75 times greater and the accuracy that results is significantly better, especially when the inspection spacing is reduced to 15 m for industrial sites. This approach found several areas of fill that contained contamination that would otherwise have been overlooked.

It also is the best method when ensuring a site is free of buried asbestos cement – a common practice in the past around suburbs of Sydney such as Rouse Hill, Camelia and Auburn.

For further details, contact

Dick Benbow:
dbenbow@benbowenviro.com.au.

Question: Do you monitor issues?

Question: Do you have a change of management procedure that guides you through a risk assessment process when changes are made to processes, chemicals in use or introduction of new legislation? Change of management tools are useful.

Question: Need help or want to discuss these practices? Please contact **Dick Benbow:** dbenbow@benbowenviro.com.au.

Experience as a Graduate Chemical Engineer

Jenny Bo has a Chemical Engineering and Commerce background and joined Benbow Environmental several months ago as a graduate.



“Although I have worked at Benbow Environmental for only a short period of time, I have gained an enormous amount of practical experience and knowledge in the environmental field. From day one, I have been actively involved in ensuring the safety and environmental sustainability of a number of small to medium sized businesses. I enjoy the challenges my work presents to me as well as the satisfaction in making a real difference to people and our environment.

“I have been involved in a number of different projects ranging from simple Odour Impact Assessments to Major Hazard Facility Safety Reports. I have been given the opportunity to regularly conduct field work such as collecting data for assessments and assessing potentially hazardous sites. My position also enables me to work with a number of modelling programs to determine impacts from potential fires, explosions, or hazardous air emissions. These results have been used in ensuring the safety of workers, residents and premises surrounding subject sites.

“Benbow values staff training and career progression and encourages us to openly share our views on possible changes and developments. The company also promotes an excellent work-life balance and holds frequent social events throughout the year to help develop our team-working skills as well as providing a great time!”

Jenny Bo: jbo@benbowenviro.com.au

New Guidelines for Air and Odour Modelling in NSW

The NSW Environment Protection Authority (NSW EPA) has published guidelines that standardise the settings and requirements in the CALPUFF model utilised for air and odour impact assessments. These guidelines are referred to as the Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessment of Air Pollutants in NSW, Australia' and came into effect on March 2011. This document can be viewed in the NSW EPA's website: <http://www.environment.nsw.gov.au/air/appmethods.htm>

CALPUFF is a non-steady state air dispersion modelling program that contains advanced modules to accurately predict air and odour impacts from a source. When using CALPUFF, a modelling domain has to be constructed, which includes a spatial gridded modelling area, as well as meteorological inputs and air emission sources that need to be prepared in an accepted format.

The biggest challenge prior to release of these guidelines was the fact that there were no standardised settings and requirements to use in CALPUFF that assessors could follow. These new guidelines address this by not only identifying the settings in CALPUFF that NSW EPA will accept, but also by providing tips and techniques that could be applied in special circumstances.

Another positive aspect of the guidelines is a further enhancement on the accuracy of CALPUFF in predicting impacts, especially for odour impact predictions. Prior to the guidelines being released, the use of "default values" in some parameters was acceptable. These parameters now have to be estimated using the methodologies specified in the guidelines. Whilst it results in a more rigorous modeling exercise, extended modeling hours often become inevitable.

Figure 1 below shows some of the critical parameters that need to be determined during the stages of preparing the CALPUFF inputs. The figure illustrates how RMAX1 and RMAX2 are estimated, which are the maximum radius of influence from the surface stations and upper air stations respectively. Surface stations and upper air stations are just some of the meteorological inputs that CALPUFF requires.

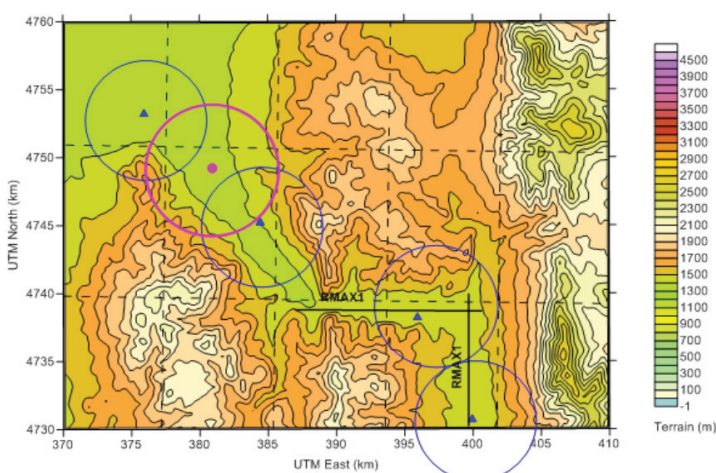


Figure 1: Extract from the NSW EPA CALPUFF Modelling System Guidance Document

Benbow Environmental have published a series of articles relating to concerns of local councils and poultry farmers alike, who are faced with the need to adhere to the stipulations of the Protection of the Environment Operations Act 1997 (POEO Act). Under the POEO Act, operators of premises that cause emission of any air impurity (which includes dust, smoke, cinders, solid particles, gases, fumes, odours and radioactive substances) are liable for a maximum penalty for air pollution offences of up to \$250,000 for individuals and \$1,000,000 for a corporation. These figures put further emphasis on the need for accurate air dispersion modelling prediction and hence the need for the CALPUFF guidance document.

Our team of Air Quality Engineers now use these guidelines in air dispersion modelling projects and will continue to push our innovation and research to assist our existing and future clients in obtaining not only the most accurate results, but also the best and most cost-effective solution possible.

Our target is to increase the observed odour reduction up to 75% or higher.

Five odour enclosures are now working, three more are under construction, and another eight are yet to be approved, giving Councils the confidence for odour control.

For further information contact **Duke Ismael**: dismael@benbowenviro.com.au.

CARBON TAX UPDATE

Australia's largest polluters are now required to pay a price on carbon emissions as of 1st July 2012. The majority of these polluters were already reporting their emissions and energy use under the National Greenhouse and Energy Reporting (NGER) Act, 2007. The initial price has been set at \$23 per tonne of carbon dioxide equivalent (CO₂-equivalent). This price will be fixed for the first 3 years. The carbon pricing mechanism will not be linked to international trading schemes or carbon markets during this fixed price period.

The Australian Government has introduced the Clean Energy Legislative Package that establishes the way the carbon price will be introduced. It is made up of a number of Acts including:

- Clean Energy Act, 2011
- Clean Energy Regulator Act, 2011
- Climate Change Authority Act, 2012
- Clean Energy (Consequential Amendments) Act, 2011

For more information, go to: <http://www.climatechange.gov.au/en/government/clean-energy-future/legislation.aspx>

Odour Control Technology for the Poultry Farmer

The poultry farmer growing chickens for meat production faces more obstacles than any other development we have experienced in gaining approval through local Council – far more than contentious chemical facilities.

Why?

The right to farm in a rural area is not respected by the rural-residential community. This right to use agricultural land for its purpose – to provide food security is one of its simplest objectives – is not being prioritised by Local Government.

It is well known that the majority of the Australian population would prefer to eat chicken produced in Australia. Rarely would a member of the community choose to consume imported chicken meat, although this is the future likely outcome unless support is given by the Government to reverse the trend of allowing rural residents to unfairly complain about agricultural industries in land zoned specifically for this use.

The legislation favors the rural resident. The evidence is that the Protection of the Environment Operations Act does not differentiate odour for agricultural land.

The right to farm is not preserved, with the loss of poultry farms in the Sydney Metropolitan Area expected to increase due to the need for more residential areas. Benbow Environmental develops unique solutions to support our community through providing effective controls for the odour at source and along the pathway from the sheds to the rural residences.

We have these solutions in place and working. Some example farms are located in Luskintyre and Kulnura NSW.

Photo 2 shows the latest example of our odour enclosure, which with the deodorizer that has been developed by a poultry farmer's wife, being the best we have experienced in terms of odour reduction from a tunnel ventilated shed. The odour reduction achieved was up to 57% based on our recent odour test.

The odour enclosure is designed specifically for each farm and is easy to build as an extra bay on the shed. Installation of the materials can be undertaken by the farmer or by a shed builder. There are specific details that need to be adhered to, which are provided by Benbow Environmental. Our design for each farm has to be developed site-specifically and is considered very economical.

The latest development is an odour enclosure constructed vertically so that adequate air residence time and excellent dispersion of the residual odour at a height well above the roof of the shed is achieved.

Typical cost per shed is approximately \$15,000.00.

The other technique we have refined is in the use of vegetation to filter dust and odour. For further details, contact: **Duke Ismael** (dismael@benbowenviro.com.au) or **Dick Benbow** (dbenbow@benbowenviro.com.au).



Photo 1: Outside shed before odour enclosure built.



Photo 2: After odour enclosure added.

Our latest odour enclosure for a tunnel ventilated poultry farm with a recent duplicate-sample-based independent odour analysis showing a 57% reduction in odour levels being achieved.

Next Issue: NOISE SPECIAL

- Acoustic Design—An integrated approach
- Noise: A matter not to be undervalued
- Office of Liquor and Gaming and Racing Noise Criteria
- Noise Crossword



Benbow
ENVIRONMENTAL

Benbow Environmental

Engineering a Sustainable Future for Our Environment

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