

Some commonly asked questions regarding methyl bromide use at Shakespeare Bay.

Q Are there tests your doctor can organise to see if you have been exposed to methyl bromide?

A Yes, exposure is determined by the amount of bromide in the blood. This test must be carried out within a few days of suspected exposure. Because bromide occurs naturally in the blood and the levels vary depending on diet, lifestyle and medications, it is only useful for people who might have been exposed to high levels of the gas. This would not apply to the general public.

Q What if I think I have been affected by gas that has drifted from the port?

A This would be very unlikely, because gas has never been measured at a port boundary at levels that would affect human health.

The maximum acceptable workplace exposure level is 5 parts per million as an average over 8 hours. All measurements taken at the boundary of Shakespeare Bay and other NZ ports have been well below 5 ppm. Typically, levels are 1 ppm or below and then for only short periods following release. Often, the gas can't be detected with highly sensitive instruments.

There is no medical evidence that humans are put at risk by being exposed to very low levels of methyl bromide. If you want to know more about the subject, do a web search for the US Environmental Protection Agency and look up methyl bromide.

Q City Council rules for fumigation at Port Nelson require operators to recover methyl bromide from containers rather than releasing it to the air. Log fumigation under tarpaulins has been banned. If it's good enough for the residents of Nelson to be protected in this way, why don't you do this in Picton?

A The rules at Port Nelson may be different to those that apply at Shakespeare Bay, but the same public safety standard applies in both places – a maximum level of 1 ppm over 1 hour at the site boundary.

This standard was set for Nelson because the port boundary is close to restaurants and residential areas. There are of course no restaurants or residential areas near the Shakespeare Bay fumigation site, but the same strict standard applies.

There have been no logs fumigated under tarpaulins in Nelson for five years or more – long before the introduction of the city's air quality plan. This is because the markets for many Nelson log shipments allow on-board fumigation with phosphine during the voyage or require fumigation on arrival in the importing country.

Where a Nelson log shipment needs to be fumigated with methyl bromide, it is part-loaded in Nelson, with the balance loaded and fumigated in another port where there are appropriate facilities. Normally this is done at a North Island port, but last year one shipment was fumigated at Shakespeare Bay and this could occur again in the future.

This is because it is standard export and fumigation practice to fumigate the ships' holds and deck cargo at the last loading port irrespective of where the vessel may

have loaded previously or how much was loaded there. This minimises the use of methyl bromide and therefore its effect on the ozone layer.

Virtually all log shipments from Marlborough are destined for India, which requires methyl bromide fumigation before departure. If Port Marlborough or local bodies banned the use of methyl bromide (or insisted on its recapture, which is impractical) the viability of the Marlborough forest industry would be put at risk.

In addition, Port Marlborough would lose its import business involving shipments that MAF Biosecurity says must be fumigated with methyl bromide on arrival.

It should be noted that many Marlborough imports and exports – such as sawn timber, household goods and horticultural produce – are routinely fumigated in Port Nelson.

Q *But surely any level of a poisonous gas is dangerous? Just because you can't measure it, doesn't mean that it won't be affecting people.*

A None of us like the idea of being exposed to poisons, regardless of the dose. But many substances that are toxic at high doses have no effect or are even beneficial at low doses.

Perhaps the best example of another potentially toxic gas is carbon monoxide. We are exposed to carbon monoxide every day, yet there are no controls or constraints on it, and its health effects at high concentrations are severe and well known. We have all heard of people being gassed by a car left running in a closed garage, or a gas cooker in an unventilated caravan – indeed carbon monoxide poisoning is the most common cause of fatal poisoning in many countries.

Yet, for most of us, carbon monoxide poses no risk at all because the quantities we are exposed to are well within our body's capacity to handle.

Unlike carbon monoxide, methyl bromide is strictly regulated as to who can use it and how it is used. This means we will only ever be exposed to trace amounts of this gas – mostly from natural sources – and these levels will be well within our body's ability to handle.

Q *When you monitor gas levels at the boundary of the Shakespeare Bay, how do you know that the monitors are placed so that they detect the highest levels of emissions?*

A The company that does the fumigation takes advice from air quality scientists who are expert in gas monitoring. They identify the locations where gas is likely to be concentrated under a variety of wind conditions. In addition to fixed monitors in these locations, mobile monitors are used to check concentrations at intermediate points.

Q *Shouldn't you be using computers to model gas dispersal at Shakespeare Bay under a range of weather conditions, as was done for the Environment Court in Nelson?*

A No, the computer models are not very accurate when modelling non-point sources like opened tarpaulins and ships' holds. Nor can they take account of the steep terrain and sea breezes at Shakespeare Bay.

In part, this is because the models don't allow for the buoyancy of released container air (which is often warmer than the surrounding atmosphere). Also, they don't allow for the fumigant absorbed by the logs, some of which is destroyed by natural compounds in the wood, nor for the staged (phased) release of gas from ships' holds.

Even if these issues could be overcome, the nearest site with detailed meteorological data is Woodbourne Airport, 30 km away in an area with very different topography and weather patterns.

STIMBR is conducting experiments to assess absorption and emission rates of logs. But even when that information is available, computer modelling at Shakespeare Bay may be ruled out by the other shortcomings mentioned above.

For these reasons, fumigant concentrations at the Bay are being monitored (directly measured), under the guidance of air quality scientists who are expert in both monitoring and modelling.

Some critics have suggested that released methyl bromide could form a 'plume' that might cause harm elsewhere. This is extremely unlikely. All monitoring at Shakespeare Bay and other NZ sites to date has shown that methyl bromide disperses rapidly under a wide range of climatic conditions, and that monitoring at site boundaries has shown the gas is either undetectable or well within safety levels.

Q *You say monitoring at Shakespeare Bay and elsewhere has shown the gas is either undetectable or well within safety levels. We only have your word for that. Why isn't this data provided to the Medical Officer of Health or the Regional Council and then publicly released?*

A Monitoring at Shakespeare Bay is carried out both by the fumigators and by independent air quality scientists. All this data is provided to Port Marlborough. The Port in turn has provided this data to the Department of Labour and ERMA. It is also made available to other public agencies such as the Nelson Marlborough Health Board and the Marlborough District Council. In Wellington, monitoring data from CentrePort has been made available to the Wellington Regional Council and ERMA.

In other words, all public agencies in Marlborough and Wellington with a need to see the data are being given access to it.

Right now STIMBR is finalising protocols to ensure that monitoring is standardised from one end of the country to the other so that data can be put into a new national database. This will provide the basis for analysis and research, as well as the further refinement of good fumigation practice.

Q *What about people who have been exposed to the gas at Port Nelson and in other workplaces?*

A Over the years, OSH (the Occupational Safety and Health division of the Department of Labour) has investigated several claims that people have been poisoned as a result of the use of methyl bromide at Port Nelson. None of these claims has been proven.

In May 2005, the Nelson-Marlborough District Health Board and OSH released formal reports on the use of methyl bromide at the port. Both reports are available on the web.

In the District Health Board report, Dr Ed Kiddle, Medical Officer of Health, investigated whether there were any links between people diagnosed with motor-neurone disease in the Nelson region and the use of methyl bromide at the Port. He was unable to obtain any evidence of this and said the incidence of the disease in the area was that expected for the Nelson population. Other specialists were involved in the preparation of Dr Kiddle's report and it was peer reviewed by two Ministry of Health specialists.

OSH for its part investigated whether residents and businesses adjacent to Port Nelson were being exposed to high levels of methyl bromide as a result of fumigation being undertaken in sheds at the port. In its report, OSH said claims that high levels of methyl bromide could exist some distance away from a fumigation site were unfounded.

Although these studies are reassuring, they do not diminish the need for very strict procedures for handling methyl bromide in the workplace. The last thing anyone wants is to put anyone's health at risk.

Every time there is an official enquiry, already tight procedures are tightened further. These procedures, regulations and Codes of Practice are taken very seriously by the companies involved, as well as by the government agencies that monitor their activities.

Q *Is methyl bromide just a cheap option? Are you risking the environment just to save money?*

A. No. Some of potential alternative treatments would be cheaper. If phosphine was accepted by importing authorities in more countries there would be a significant cost saving.

Q What economic benefits does Marlborough get from log shipments?

A Zindia, the company that exports logs from Marlborough to India, analysed the benefits to the Marlborough economy of a shipment loaded and fumigated in Shakespeare Bay in February 2009. This shipment directly employed 256 people from 34 different companies (all the way from forest management, logging, cartage, marshalling, stevedoring and stowage) and returned more than \$3.7 million to the Marlborough economy.

| Q *The EU has given notice that it will be banning the use of methyl bromide from 2010. What effect will that have on your operations?*

A The EU ban is not expected to have any effect on log exports from Shakespeare Bay as our trade is with India. The EU still requires oak logs exported from the USA to be fumigated with high rates of methyl bromide.

Although methyl bromide has been replaced with the fumigant sulphuryl fluoride for use within the EU, it is not registered in NZ, its optimum temperature is 26 deg C, and has recently been proven to be a bad greenhouse gas. It lasts for 650 years in the atmosphere and has 4800 times more global warming potential than CO2.

Meanwhile it has been reported in the press that the ozone layer is recovering faster than predicted, despite current use of methyl bromide, while the greenhouse effect is still gathering pace. This suggests that the EU, like us, has some considerable way to go before it finds a satisfactory replacement for methyl bromide. Also Europe has experienced a large increase in new forest pest incursions, something that NZ cannot afford.